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DEPARTMENT OF DEFENSE APPROPRIATIONS FOR FISCAL YEAR 1988

HEARINGS

BEFORE A

SUBCOMMITTEE OF THE
COMMITTEE ON APPROPRIATIONS
UNITED STATES SENATE

ONE HUNDREDTH CONGRESS

FIRST SESSION

ON

H.R. 3576/S. 1923

AN ACT MAKING APPROPRIATIONS FOR THE DEPARTMENT OF DEFENSE FOR THE FISCAL YEAR ENDING SEPTEMBER 30, 1988, AND FOR OTHER PURPOSES

PART 3 (Pages 1–744)

MILITARY SPACE PROGRAMS
NATIONAL GUARD AND RESERVE FORCES
OVERVIEW OF AIR FORCE BUDGET
OVERVIEW OF NAVY BUDGET

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DEPARTMENT OF DEFENSE APPROPRIATIONS FOR FISCAL YEAR 1988

THURSDAY, APRIL 9, 1987

U.S. SENATE,
SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS,
Washington, DC.

The subcommittee met at 10:05 a.m. in room SD-192, Hon. John Stennis (Chairman) presiding.

Present: Senators Stennis [presiding], Hollings, Johnston, Chiles, Sasser, Stevens, Cochran, D'Amato, and Kasten.

DEPARTMENT OF DEFENSE

DEPARTMENT OF THE NAVY

U.S. MARINE CORPS

STATEMENT OF HON. JOHN LEHMAN, SECRETARY OF THE NAVY

ACCOMPANIED BY:
ADM. C.A.H. TROST, CHIEF OF NAVAL OPERATIONS
GEN. P.X. KELLEY, COMMANDANT OF THE MARINE CORPS

OVERVIEW OF NAVY BUDGET REQUEST

OPENING STATEMENT OF CHAIRMAN STENNIS

Chairman STENNIS. Everyone in the auditorium here is welcome.

We are in session here in this committee, a very important hearing. And we also are in session on the floor of the Senate, where the pros and cons are finally recorded. We will try to move along, not race along but move along, firmly and fully.

I have some brief opening remarks here that I am going to abbreviate even further to give you gentlemen a chance to ask some questions in case you have to leave.

We are glad to have Secretary Lehman with us this morning. I have watched his activity and the amazing amount of work he can do and the things he can get done with thoroughness. His willingness to try is impressive.

We are delighted also to have Admiral Trost here. He has a fine reputation. He is Chief of Naval Operations. And we welcome General Kelley, the Commandant of the Marine Corps.

Senator, do you want to go first here now, say for 8 or 10 minutes? Would it suit you better to go that way?

Senator STEVENS. Mr. Chairman, that is fine. I think I will go to another committee and then come back.

Chairman STENNIS. Well, we do not want to lose you.

Senator STEVENS. I will come back.

Chairman STENNIS. Thank you. We will be looking for you.

All right, Senator Hollings, you are recognized.

Senator HOLLINGS. Thank you very much, Senator.

Chairman STENNIS. Let us start off with 10 minutes each.

Now, gentlemen, you are all welcome. As you can see we are up against a time matter here, swapping one Senator off against another and so forth, but we will get to you.

COMPLIMENTARY REMARKS FOR SECRETARY LEHMAN

Senator HOLLINGS. Mr. Chairman, I wanted to reiterate your comments about the distinguished Secretary of the Navy, John Lehman, I believe he steps down tomorrow. Unfortunately, I cannot be at that exercise.

But I saw him long before he became Secretary of the Navy when he worked at the National Security Council and then at the Abington Corporation. And most advisedly, Mr. Chairman, he knows the Army budget, he knows the Air Force budget, he knows all the other budgets of the Department of Defense, as well his own Navy and Marine budgets.

And he knows not just the budget figures, but he knows the men. I have seen him at sea. We were in Scotland, in the lochs with our submariners. I have seen him aboard ship, I have seen him on shore with the men, thousands gathered, asking questions about their families, their benefits, and everything else.

And he has the loyalty to the men and the mission of the U.S. Navy like I have never seen before. And I say that advisedly. I started with Bob Anderson back in 1954 and 1955 when I investigated Navy Intelligence under the Hoover Commission activity, and I have seen them all come and go since that time.

And he has got us a renewed Navy, and he has cut back on the costs. That is the first thing he went after, if you will remember, when he took office, was to go after these contractors and make them pay up for activities that the Government should not be charged with. He put in procedures whereby we would stop the cost overruns and get competitive bidding.

So I want to say categorically, that in my experience he has been the outstanding Secretary and he has done a magnificent job for this country.

SECURITY PROBLEMS AT U.S. EMBASSY IN MOSCOW

Now, I want to talk to my friend General Kelley about fixing responsibility. General, on the matter of our Marines, which is a sort of personal embarrassment to both of us—my nephew the year before last was the outstanding cadet of 846 at Quantico, and he now has a regular commission. He has been through basic at the Quantico officers school and he is now at Lejeune. And I hate to see him on the weekend, with the headlines that I read.

I know the responsibility for the problem in Moscow is principally with the ambassador and the regional security office. In fact, I have opened their eyes. Yesterday I cited the section of the Code whereby you possess classified material and through gross negligence you allow it to come into the possession of our enemies, or be lost or stolen or otherwise, you are guilty of a crime, with a year in jail at least, fines of up to $10,000, and not more than 10 years.

So the Director of the FBI has assigned now his agency force to get the polygraph tests of the regional security director. We have been giving polygraphs to all our Marines.

MARINE DISASTER IN LEBANON

But when are we going to fix some responsibility with the Marines themselves? We had quite a to-do—I have not seen it fixed yet—with the loss of the Marines in Lebanon. What do we do about this one as you see it?

General KELLEY. Let me address the first issue. I do believe, Senator Hollings, if one reads very carefully the results of the Long Commission on Beirut, a Commission established by the Secretary of Defense at my recommendation that Admiral Long and his Commission, who worked 7 long weeks and produced a very lengthy and comprehensive report, did fix responsibility for Beirut. So I think that it has been fixed.

Senator HOLLINGS. How was it fixed?

General KELLEY. In the Long Commission.

Senator HOLLINGS. Who was responsible? Who did they finally find responsible?

General KELLEY. It was the whole chain of command they found responsible, the whole operational chain of command. It was clearly established in the Long Commission.

Senator HOLLINGS. That is what we always find: the process. We found that with the Challenger. We find that at every turn. That is what I want to stop now.

I think if you indict an ambassador and a regional security officer, rather than building $4 billion worth of pillboxes all over the place you will find security. You will not have to spend an extra cent on security. You just fix that responsibility, rather than the process.

Is that what we are going to do now, find it in the process?

General KELLEY. Absolutely not, sir. We are working with all agencies of the government in a very, very comprehensive investigation right now that literally involves hundreds of people. There is nobody in the Marine Corps, there is nobody in this country, that wants to fix the proper responsibility within the Marine Corps chain of command more than the Commandant of the Marine Corps.

And we are working on it. When the evidence comes up where we can fix actual responsibility, the individual will be held responsible.

Senator HOLLINGS. In my day, if a man in uniform turned traitor, they executed him. Do you believe that?

General KELLEY. I am in a position right now, sir, where I am part—well, not part of the investigation, but I am certainly in the chain of command. It would be a little imprudent of me to make that kind of a judgment at this time.

I believe that anyone guilty of treason in a generic sense—indeed, I would support that.

Senator HOLLINGS. Well, I appreciate that answer, because I think that is the way you fix the responsibility. All this youth and verve they have; I tell you right now, they would not get excited about any woman if they knew that they were going to lose their life as a traitor.

We just do not fix responsibility in this government any more. That is our problem. If we can fix responsibility, Mr. Chairman, I think we would save a lot of money and a lot of time and install a discipline within the society.

But my main purpose is to follow you, Mr. Chairman, and let me yield to the other colleagues here for the record.

Chairman STENNIS. All right. Senator D'Amato, New York. We are starting off with not over 10 minutes.

COMMENDATION TO SECRETARY LEHMAN

Senator D'AMATO Mr. Chairman, first of all let me say that I would like to commend John Lehman, our Secretary of the Navy. As you know, Mr. Chairman, it will be the last time Mr. Lehman appears before us. I think he has done an outstanding job.

He has helped to rebuild our Navy. He has undertaken the kinds of initiatives that in the long run are going to help secure peace or give us a better opportunity as a result of our strengthened Navy, not only in terms of the strategic capabilities but moving towards the 600-ship Navy.

And I want to commend Secretary Lehman. It has been a pleasure working with him. And also General Kelley, since this will be the last opportunity that we get to see the General. I think on his watch the Corps has been called upon to execute some very difficult undertakings, including the situation in Beirut.

And we certainly wish you well, General Kelley, and we thank you for your outstanding service.

I have a number of questions, Mr. Chairman. I would like to submit them for the record if I might.

Chairman STENNIS. All right. Without objection, your questions will be put in the record. And that means, gentlemen, that you give it your personal attention in seeing that answers come back for the record.

Chairman STENNIS. All right. Senator Cochran.

STATEMENT ON SECRETARY LEHMAN

Senator COCHRAN. Mr. Chairman, thank you very much. Just a very brief opening statement and then I am anxious to hear from the witnesses, as I know you and the other members of the committee are.

But I want to congratulate Secretary Lehman on the outstanding job he has done as Secretary during the 6-plus years that he has served in that capacity. He has not only been visible, obviously energetic, but he has been an effective Secretary.

STRATEGIC HOME PORTING

I am glad to have an opportunity this morning to commend you on what we assume will be your last appearance before our committee. I hope during your testimony you will give us the opportunity of an update on the status of the strategic home porting that is going on.

I know that the Military Construction Subcommittee has jurisdiction over the actual recommendation of a level of funding for that program, but this subcommittee has been very actively involved in that process. And I hope you can give us an idea of the status of that program.

It is very important, of course, for the citizens in our State, who have become involved in helping to finance the construction of a new home port at Pascagoula. And I think it would be a benefit to all of us if we could have that information.

General Kelley, I want to congratulate you, too, on the modernization of the amphibious forces under your command in the Marine Corps. I know there are some construction projects that have been important to this modernization, the LHD-1 class, the LCAC craft. Our State has had a role to play in the construction of both of those new parts of this amphibious force, and I think that is a significant achievement.

And I hope in your testimony you can enlighten us on the impact of that on our readiness and on our ability to do the job of protecting the security of our country.

Finally, we welcome Admiral Trost as well. We look forward to his testimony, too.

Mr. Chairman, thank you very much for giving me an opportunity to make an opening statement.

OPENING STATEMENT OF CHAIRMAN STENNIS

Chairman STENNIS. All right, gentlemen. I will proceed here with an opening statement prepared with the able assistance of staff, competent men.

I noted with interest and have given close attention to the recognition that the membership here has given to retiring Secretary Lehman. His record is outstanding. It represents his best, because he does not do things halfway, based on his vast experience and his ability to get results. I salute him for this service.

I am not an expert in the Navy, but I have seen a lot of Secretaries come and go, and he is certainly among the best. And one thing specific is that, through his leadership, the Navy Department is now well on its way to achieving its goal of a 600-ship Navy.

When Secretary Lehman took his office in 1980, forward-deployed carriers were averaging about 60 percent mission-capable. Last year all forward-deployed carriers averaged nearly 90 percent mission-capable.

Since 1980, the Navy has reduced its backlog of maintenance from nearly 20 ships to zero backlog today. Six years ago, the Navy Department competed under 20 percent of its contracts. Today, under Mr. Lehman's direction, the competitions run as high as 73 percent of all the contract actions.

Now, Secretary Lehman did not do all this by himself. He had able, competent help, and it shows just what can be done in a time of need. So I commend him and those who assisted him.

Now, General, we have been interested in your career here, too, as Commandant of the Marine Corps. Certainly you have a good record. You have accounted for yourself, and we all wish you well. There is not time for going into the details of that record, but it will come out during some of the rest of these hearings.

ADJUSTMENTS TO NAVY BUDGET

This committee has a very difficult job to do this year. This means adjustments will have to be made to the Navy requests before the committee today. Secretary Lehman, I trust that you are prepared today to tell this committee what is highly important in your budget request, keeping in mind that we are in a very difficult budget environment.

In reviewing your budget request, there are a number of items we feel need to be addressed in particular. First, this budget begins funding two new carriers to replace the *Midway* and *Forrestal*-class carriers in due time. Second, your budget shows negative growth in your aircraft procurement account, which will hold production rates level and reduce aircraft modifications by 50 percent, and spares and repair parts by 8 percent.

WEAPONS PROCUREMENT

Your weapons procurement account shows a very healthy increase of 24 percent over your 1987 levels. The majority of this increase is in the Trident II program, with a ramp-up from 21 missiles in 1987 to 66 missiles in 1988. We would like to hear your reasons for making this account such a high priority in 1988 and what effect this big increase has had on the rest of your budget.

The Other Procurement account provides the support equipment critical to the Navy's conventional readiness. This account is reduced almost 20 percent from the level appropriated by this Committee last year.

ANTISUBMARINE WARFARE CAPABILITIES

The Navy has emphasized that its top priority this year is improving our anti-submarine warfare capabilities and technology against an enhanced Soviet submarine threat. So the committee will be interested in hearing whether the increase in these areas reflects such a priority.

RESEARCH AND DEVELOPMENT

Research and development is an investment in the Navy's future, because these scientific and technological activities provide the improvements in sensors, in weapons, and platforms which maintain our maritime superiority. Yet, the taxpayers must be confident that they are obtaining the most for their hard-earned investment.

Now, gentlemen, I am always trying to run around and give a lot of advice, but I feel that I lean with the military and have over the years that I have been here. And I want to offer one observation, a piece of advice. Make it clear, all of you, make it clear that you really try hard to spend wisely the money that is entrusted to you, to make it count and get value received for it.

It is a part of our duty to see that money that is collected from the people in the form of taxes and spent by those of us in office or in the services—everything considered, it is our responsibility and your responsibility to see that that money is spent in a purposeful way, an effective way, and that the taxpayer gets value received.

It is a principle of our government and it is a matter of entrustment and it is a matter of responsibility. We are supposed to be capable, elected officers and selected officers, like you are. But it is the people who pay.

Let us go out of our way not only to practice these things, but also to make it clear, make it known that we are trying to save money and get value received for what we have to spend.

Now, I am anxious that all of you have a chance to participate. I do not know when we may be called to duty elsewhere.

Senator Johnston, you are next in line here.

Senator JOHNSTON. I have no opening statement.

Chairman STENNIS. We are trying the 10-minute rule now. You will receive 10 minutes if you wish.

Senator JOHNSTON. I have no opening statement, Mr. Chairman.

Chairman STENNIS. I am reminded that Secretary Lehman has not made his opening statement yet. Let us hear him now.

REMARKS COMPLIMENTING SECRETARY LEHMAN

Senator CHILES. Mr. Chairman, I do not have an opening statement, but I would want to take this opportunity to say both to Secretary Lehman and to General Kelley, who are shortly going to be leaving us, just to compliment them on the service that they have made.

I think, Mr. Secretary, you have done an outstanding job. Certainly, the people in Florida that are Navy people and the Navy establishment, the Navy League, all hail your role as Secretary and feel that you have done an outstanding job.

You are considered sort of an adopted Floridian by virtue of your service down there at Pensacola, in that area. And they always, as you know, look forward to your visits there, whether you are doing training or flying or whether you are coming in your official capacity. And they are certainly going to miss you, and I think we are going to miss you in that role.

And General Kelley, again, you are a person that has given a lifetime of distinguished service, and I certainly compliment you on that service and tell you that you are leaving an awful void that will be hard to fill also. And we wish you both well as you are leaving.

Chairman STENNIS. All right. You gentlemen have other duties, I understand. Senator Sasser, do you want to say a word now? You can ask questions later, make remarks now with questions later.

Senator SASSER. Mr. Chairman, I would like to make a very brief opening statement. Mr. Chairman, I want to echo some of the comments made by my colleague, Senator Chiles. I assume this is Secretary Lehman's last appearance before this subcommittee, and I simply want to commend him for what I believe is a job well done.

I think that this Secretary of the Navy has probably left a larger imprint on the Navy than any Secretary in recent years, perhaps any Secretary since Franklin Roosevelt just during and after the First World War.

I say that as one who has not always agreed with Secretary Lehman on every point. We have had our areas of disagreement, but I think our areas of agreement have substantially overreached those. And I think he has demonstrated an energy and, I might say, even an audacity that has been refreshing to those of us who watched him operate in a very, very difficult job, I think at a very, very difficult time.

So he is going to be missed, and I just say to you, Mr. Secretary, that I think it was a job well done. It has been a pleasure to watch you operate in your capacity.

Now, before yielding, Mr. Chairman, I would be derelict if I did not make one point here. I am the Chairman of the Subcommittee on Military Construction Appropriations. Over a period of years here, we have had the various services proposing large increases in military construction, in their military construction budgets. And then when we get down to actually deciding where the dollars go, it is the military construction budget that has to take the lion's share of the cuts that are coming.

I would just like to urge General Kelley and Admiral Trost and Secretary Lehman and his successor to hang tough with us on this military construction budget and help us as we fight to get our fair share of the budget dollar for military construction.

Thank you, Mr. Chairman.

Chairman STENNIS. Thank you.

Secretary Lehman, if you are ready to make a statement.

STATEMENT OF HON. JOHN F. LEHMAN, JR.

WORKING PARTNERSHIP OF NAVY AND CONGRESS

Secretary LEHMAN. Thank you very much, and I appreciate all of those very nice words that you have opened with this morning.

I am appearing for my seventh and last time as Secretary of the Navy before this subcommittee, and I want to tell you how much I have really enjoyed working with this committee. It is really going to be a part of the job that I am going to miss a great deal.

Over the years you can look back, I think, with a great deal of pride in the partnership you have had with the Department of the Navy. Every year it has been a very interesting and sometimes sporty dialogue with this committee. But out of it has come a model of what the process should really be; the partnership between the branches.

We certainly do not have a monopoly on the wisdom of putting together the budget and the priorities and the various weapons systems and policies that underlie them. This committee and its staff, I think, ought to be seen as a case study in how the process ought to work. I am sure that is going to continue in the years ahead.

I have a prepared statement which I would like to request be put in the record, Mr. Chairman, and I would just like to summarize it, if you will, in just a couple of key lessons learned.

Chairman STENNIS. Without objection, the Secretary's opening statement will be included in the record at this point, and he can make such observations relating thereto or any other points he wishes.

[The prepared statement of Secretary Lehman follows:]

PREPARED STATEMENT OF HON. JOHN LEHMAN

SECRETARY OF THE NAVY

Mr. Chairman, I welcome this opportunity to appear for the seventh time to offer my assessment of the current posture of the Navy/Marine Corps team and to present the Department of the Navy budget request for Fiscal Years 1988/1989.

Among the more memorable events of this past year for the Navy and the nation was Liberty Weekend, when the Statue of Liberty was rededicated on its hundredth birthday. The Lady's escorts into her new century included an international naval review and "Operation Sail 86". Side by side, the past sailed with the future as aircraft carriers, and the battleship IOWA, joined in celebration with the tall ships of a bygone era.

This occasion symbolized not just the brotherhood of those who sail the sea, but the brotherhood of all those who defend liberty. The near perfect coordination of so many different vessels testified to the skill and pride of today's U.S. Navy. Liberty's rededication also reminded the nation and the world of the crucial role played by oceans in our country's past and future security. As a "continental island", the United States must always be able to salute Liberty from the sea.

As you review the significant progress in this seventh year of President Reagan's Naval Recovery Program, I urge you to keep one thing in mind. The Navy's budget is designed to give us what we need to execute the maritime strategy. The maritime strategy is derived from, and part of, the national security strategy. The keystone of the maritime strategy and the nation's national security is maritime superiority.

Maritime superiority means that the United States must be capable -- and be seen to be capable -- of keeping our sea lines of commerce and communications secure in those areas of the world where our vital interests depend on them. If we are to survive as a free nation, then our access to our allies, our energy sources, and our trading partners cannot be hostage to the offensive power of any combination of adversaries. Together with our allies we must have the maritime power to militarily defeat any attempt to close off such access.

Today's fleet and the Fleet Marine Force are more ready to stand in harm's way than in any time in our peacetime history. This Committee and all Americans should take much pride in the dramatic accomplishments of the Naval Recovery Program. But we cannot abandon our recent achievements and foolishly allow our maritime strength to be sacrificed on the altar of economic or political expediency. If our Naval Recovery Program is not followed by a realistic maintenance policy, then deterrence will dissipate, and we will fail tragically when we are called upon to fulfill our commitments simultaneously in the various oceans of the world.

PART I

I. Strategy

In Washington, imaginative daydreaming often masquerades as strategy. Our cottage industry of armchair strategists, as a kind of a chess game, spins out long hypotheses about how particular campaigns should be waged, how ships should be deployed, when the tanks should be used, and when and where the rolling firepower should be concentrated. This may be fun, and it occasionally may produce a best selling novel, but it is not strategy.

Strategy means to address rigorous logic to the allocation of the scarce resources available to us in order to secure the objectives of our national security. Strategy is the logical set of allocations and priorities that guide how we spend our money and train our people, and it requires careful scrutinizing of the strategic realities with which the United States must contend.

National Security Strategy

Self-styled military reformers often assert that the United States has no national strategy. They are wrong. A succinct statement of our national security strategy has been provided to Congress by the President. That strategy is set forth in the context of specific national interests and fundamental objectives designed to preserve this country's free democratic institutions, to protect the United States, including its foreign assets and allies through a solid foundation of military strength, to foster the country's economic well-being, and to bolster an international order supportive of the vital interests of this country and its allies. Maritime strategy plays a prominent role in our national security strategy. As an island nation and senior partner in a global alliance system, we must have strong naval forces to support the maritime strategy. As the President noted in his national security strategy statement:

> "Maritime forces play a unique role in supporting our military strategy. Given the realities of our geostrategic position, fronting on two oceans, maritime superiority is vital to support our alliance relationships and our forward deployed forces.
>
> Maritime superiority enables us to capitalize on Soviet geographic vulnerabilities and to pose a global threat to the Soviet's interests. It plays a key role in plans for the defense of NATO allies on the European flanks. It also permits the United States to tie down Soviet naval forces in defensive posture protecting Soviet ballistic missile submarines and the seaward approaches to the Soviet homeland, and thereby to minimize the wartime threat to the reinforcement and resupply of Europe by sea.

the classical era forward testify consistently to the influence of sea power upon history. Their singular lesson is that great continental powers do not long prevail against an opponent with mastery of the seas. The Soviet Union seems to have understood the experience of history, which motivates in part their achievement of a blue-water navy. It is not accidental that the free world alliance is named for the great sea that connects its members while its totalitarian adversary takes its name from a land-locked city. Today, continental defense in NATO rests on early achievement of maritime superiority.

Maritime superiority is not an alternative to, but a prerequisite for, any successful pursuit of defense and deterrence in the continent of Europe and the NATO area as well as the United States itself. Conversely, no maritime strategy can be a successful strategy without an effective land deterrent on the continent of Europe. The only real choice is between maintaining a maritime strategy in the defense of the Atlantic Alliance or failing to do so -- a failure which would prove fatal to NATO's overall defense policy.

The Maritime Strategy

Not since the days of Theodore Roosevelt have the Navy and Marine Corps exhibited such a strong consensus on the comprehensive strategy which now forms our naval planning. Briefly stated, our strategic objectives are the following:

- To prevent the seas from becoming a hostile medium of attack against the United States and its allies

- To ensure that we have unimpeded use of our ocean lifelines to our allies, our forward-deployed forces, our energy and mineral resources, and our trading partners

- To be able to project force in support of national security objectives and to support combat ashore, should deterrence fail.

To achieve these objectives, we need a maritime strategy at once global, forward deployed, and--with our allies--superior to our probable opponents. Global, because our interests, allies, and opponents are global; forward deployed, because to protect those interests and allies, and to deter those opponents, we must be where they are; superior, because if deterrence fails to prevent a conventional war at sea, it is better to win than to lose.

Today's debates would benefit from a more precise understanding of the role of strategy. Strategy is not a formula for fighting each ship and deploying each tank in the battles that may take place around the world. That is not the function of the military establishment inside the Washington Beltway. Such is the proper function only of the theater commander who is given the responsibility to carry out the defense objectives set by the national command authorities.

Beyond the central concept of global, forward-deployed, and superior naval forces, strategy's role is to give coherence and direction to the process of allocating money among competing types of ships and aircraft and different accounts for spare parts, missile systems, defense planning, and the training of forces. It provides guidelines to aid us in allocating both resources and shortages.

Title 10 of the U.S. Code charges the Secretary of the Navy with ensuring the highest level of training appropriate to the responsibilities placed upon both the Marine Corps and the Navy. That is what strategy provides to us--a framework within which to train. One will search in vain, however, for a Navy cookbook that tells on-scene commanders when to move aircraft carriers, or how or where to move attack submarines or Aegis cruisers at any given point after a conflict commences. There should never be any such cookbook and certainly it should never come from Washington. Those who criticize our strategy for being the wrong cookbook or for not having a cookbook do not understand strategy.

Other critics argue that our Navy should be less global, less forward-deployed, or less superior, with the resources saved to be poured into a stronger continental defense. To be less global means to abandon some area of our vital interests. To believe that in the case of the Northern Flank of NATO, for example, a "passive" defense line thrown across the Greenland-Iceland-United Kingdom Gap will somehow protect our sea lanes or defer an engagement with Soviet forces demonstrates a lack of understanding of the fundamental mechanics of war at sea and the workings of NATO and the Soviets' own operational requirements. No coalition of free nations can survive a strategy which begins by sacrificing its more exposed allies to a dubious military expediency. To suggest that naval support of Norway or Turkey or Japan is too dangerous because it must be done close to the Soviet Union is defeatist. To suggest that such a strategy is provocative to the Soviets just indicates the lengths to which some critics will go, in order to portray Soviet intentions as solely defensive. We must never forget that the basic source of Soviet antagonism toward us stems from the fact that the United States is the only nation capable of effectively resisting an expansion of Soviet hegemony.

As for strengthening our continental defenses, we and our allies are also doing just that. The U.S. alone has expanded its Army from 21 to 28 divisions since the mid-seventies, adding two reserve and five active divisions including support for more than 9200 Army aircraft. To discard maritime superiority in an attempt to match the larger Soviet ground forces, however, would give us neither conventional deterrence on land nor secure access by sea unless the Western democracies are prepared to militarize their societies to an unprecedented, and unwise degree.

As Secretary of Defense Weinberger has noted:

> "Our maritime strategy continues to emphasize forward presence to prevent non-hostile situations from becoming hostile. Should a crisis involve the actual use of force, our strategy calls for controlling the situation with forward deployed forces on the scene... In the tradition of Theodore Roosevelt, the greatest value of President Reagan's maritime strategy is that it focuses on the crucial issue of how we can best use our maritime forces, and those of our allies, to achieve the basic goal of deterrence -- and deny the adversary his preferred warfighting strategy."

A centerpiece of our President's defense buildup has been the revitalization of our naval forces reflected in our building of a 600-ship fleet.

III. The 600-Ship Navy: Building to the Strategy

National security strategy provides the mission for our naval forces and the maritime strategy provides the conceptual framework for employing all forces to achieve the national objectives. From that strategy logic dictates the size of the fleet, the kinds of ships and weapons used, and the type and intensity of training and readiness.

Why 600 Ships? What Determines the Size of the Navy?

Since World War II, maritime force planners have found themselves at the mercy of three enduring elements:

Geography. Water covers three quarters of the world; and the United States is an "island continent" washed by the Atlantic and Pacific oceans.

Vital Interests of the United States. These are expressed in the web of more than 40 treaty relationships that bind us to mutual defense coalitions around the world. These relationships shape our national security requirements--together with the energy and commercial dependencies that support our economy in peace and in war.

The Soviet Naval Threat. Whatever the internal rationale for the massive expansion in the capabilities and sphere of operations of the post-World War II Soviet Fleet, the USSR has created an offense-capable, blue-water force, providing a major element in the Soviet Union's global military reach that supports the expansion of Soviet influence from Nicaragua to the South Pacific, and from Vietnam to Africa. Daily, no matter where our fleet operates, our ships and men may pass within yards of Soviet naval forces. Familiarity is breeding a well-deserved respect on both sides: we see that the Soviets are good and are getting better--and they recognize that we are doing likewise.

Soviet surface forces have long been making deployments to the vulnerable chokepoints of the Caribbean Sea and Gulf of Mexico. Worldwide, we find the Soviet Navy able to maintain itself astride the vital sealanes and navigational chokepoints through which most of the Free World's international trade must pass. These Soviet naval deployments constitute a fundamental change in the global military balance of power that has been surpassed in significance only by the advent of thermonuclear weapons. The rise of the Soviet Merchant Marine has been an integral component of the overall, unified Soviet concept of sea power and has taken on an even greater significance in recent years in view of the precipitous decline in Free World merchant shipping and shipbuilding. No planner - civilian or military - can ignore the dimensions of Soviet maritime power.

The past year has continued the Soviet Navy's new emphasis on quality in ship construction and weapons systems and marked the entry into service of the first of the new, quiet AKULA-class nuclear-powered attack submarines and the first launching of the

SS-NX-21 strategic cruise missile from an operational submarine. New ship and submarine construction continues apace, with a return to the higher levels of submarine launchings common to the 1970s: nine submarines entered the water, five of them nuclear-powered, and one of those is intended for launching strategic ballistic missiles. The fourth KIEV-class carrier has left its building yard, and fitting out work continues on the first ship of the new giant carrier class that we expect to form the nucleus of Soviet task groups in the 1990s. To complement these 65,000-ton carriers, work continues on the third and fourth KIROV-class nuclear-powered guided missile cruisers. Construction of SLAVA-class cruisers has resumed, and destroyer building continues at a steady rate. Soviet yards in the past year delivered a staggering 73 combatants, of which only 31 were for export.

The capabilities of the Soviet task groups of a decade from now, when combined with continuing advances in the Soviet Navy's use of space for surveillance, communications, and navigation will be an order-of-magnitude superior to the forces we now face. The maturing of Soviet naval air power will be matched by an overall increase in fleet offensive and defensive capabilities as the sophisticated ships of the 1980s replace the mass production units of the 1950s and 60s. The Soviet fleet of the 1990s may be a bit smaller than at present, but its submarines will be faster and quieter and will have better sensors and self-protection; its surface ships will have greater endurance, new generations of sensors and weapons and greater survivability; and new aircraft will have greater endurance and payloads. More significantly, the command, control and communications network that binds together these forces will be far more responsive and redundant.

Two changes in Soviet naval activity during 1986 suggest that the U.S.S.R. has been paying attention to the development of the maritime strategy and to the renaissance of our fleet under the Reagan Administration: while the deployment level of Soviet strategic "out-of-area" activity for other Soviet submarines and their surface forces has dropped markedly, major fleet exercises in 1986 departed from previous trends and were staged much closer to home, under the umbrella of land-based aviation. Overall, the Soviet Navy has continued to operate and to train--but activities have switched dramatically to their home waters. The net strategic result appears to us to be a Soviet fleet positioning and training to counter the maritime strategy.

Wartime Requirements or Peacetime Deployments

Geography, alliances, and the Soviet threat combine to dictate the actual numbers of ships--the "size of the Navy"--required to fulfill our commitments in each of our maritime theaters. Before reviewing in detail the forces we need in each theater, some observations are in order:

Any view of the global disposition of the U.S. Navy and Marine Corps reveals that we often deploy in peacetime very much in the same manner as we would operate in wartime. For purposes of deterrence, crisis management, and diplomacy, we must be present in the areas where we would have to fight if war broke out. Of course, the operational tempo is different--a roughly three-to-one ratio in wartime, as compared with peacetime.

We also train as we intend to fight. A full-scale general war at sea would rarely find a carrier battle group operating alone. So we train often in multiple carrier battle forces.

Allied Navies. To deal with the primary Soviet threat, as we do in all our planning, we start with a base of allied forces in the areas under consideration. The navies of our allies are good. In areas such as diesel submarines, frigates, coastal patrol craft, minesweepers, and maritime patrol aircraft, our allies have assets absolutely essential to us for sea control in war and peace. In some regions, such as the Eastern Atlantic and the waters surrounding the United Kingdom, our allies supply a majority of the antisubmarine capability to counter the Soviet threat. In fact, if we could not count on our allies, we would require a U.S. fleet much larger than 600 ships to deal with the 1,700 ships and submarines that the Soviets can deploy against us. All but one of the world's greatest navies are on our side, and this gives a tremendous advantage to the U.S. Navy and a significant cost savings to the U.S. taxpayer.

Shifting Trade Dependency. America's increasing commercial and energy interdependence with Asia, and the growth of the Soviet Pacific Fleet--now the largest of the four Soviet fleets--have negated the so-called "swing strategy" of the Fifties, Sixties, and Seventies, which planned to reinforce the Atlantic Fleet with combatants from the Pacific in time of crisis. Today, the United States has Asian interests at least equal to its historic engagement in Europe. Existing treaty relationships in the Pacific have been augmented by growing commercial connections. For example, in 1980, the value of U.S. trade with the Pacific rim nations was roughly equal to trade with the country's Atlantic partners. Five years later, Pacific trade exceeded that with Western Europe by $47 billion.

Shifting Oil Dependency. Our oil dependencies have shifted tremendously in the last five years, exploding the old myth of utter dependence on the Middle East. The reorientation of U.S. sources for crude oil --on a hemispheric axis-- is a long-term geopolitical reality that has gone largly unnoticed. However, it has forced America to reconsider the priorities of naval deployments in the Northern Pacific and Caribbean regions. In 1985 alone, the United States imported nearly eight times as much oil from the Western Hemisphere as it received from the entire Middle East. During the first nine months of 1986, Alaska alone produced an average of 1,800,000 barrels of crude oil daily, nearly three times the amount we imported daily from the Middle East and Persian Gulf. The locus of our oil trade is now clearly in the Western Hemisphere: Alaska, Canada, Mexico, Venezuela, and the Caribbean area.

With these observations as background, let us review our forces in the main geographic areas: the Atlantic, the Mediterranean, the Pacific, and Indian Ocean-Persian Gulf.

The Atlantic

The large Atlantic theater encompasses the North Atlantic, the Norwegian Sea, the Northern Flank of NATO including the Baltic throat, the South Atlantic, the Caribbean, and the Gulf of Mexico. It includes the coasts of South America and the west coast of Africa, all vital sealanes of communications. And it involves the Mediterranean and the Middle East. The U.S. Navy operates in the Atlantic theater with two fleets, the Sixth and the Second.

The Sixth Fleet in the Mediterranean is the principal fighting force of the NATO Southern Europe Command and provides strike, amphibious, anti-air superiority, antisubmarine, and close air support for the entire Southern Flank of NATO--a principal makeweight in the balance in the Central Front.

In addition, the Sixth Fleet is the principal naval force that supports our friends and allies in the Middle East. The threat there is significant. The Soviets maintain a fleet in the Black Sea and a deployed squadron in the Mediterranean. In wartime, we expect to see there also Soviet naval strike aircraft, a formidable number of diesel and nuclear submarines, and a full range of missile cruisers, destroyers, and other smaller combatants.

In wartime, U.S. forces in the Sixth Fleet would have to include three or four carrier battle groups, operating to meet NATO commitments. We would also need to deploy a battleship battle group and two underway replenishment groups. In peacetime, we average over the year about one and one-third carrier battle groups deployed in the Mediterranean.

The Second Fleet is the heart of the Atlantic strike force for NATO. It is responsible for naval operations in the North Atlantic, the Eastern Atlantic, Iceland, the Norwegian Sea, the defense of Norway, and the entire Northern Flank including the North Sea and Baltic throat. It must simultaneously accomplish any naval mission required in the Caribbean, where we now face a very large Soviet and Cuban naval interdiction capability; in the South Atlantic, where we have vital sealanes; and along the West African sealanes, where the Soviets now deploy naval forces continuously.

For the Second Fleet, in wartime, we must plan to have four or five carrier battle groups, one battleship battle group, and three underway replenishment groups. Four carriers bring the equivalent firepower of 40 World War II carriers and can deliver accurate strike ordnance on target equal to 800 B-17s every day. Most of our Atlantic fleet training occurs in the Second Fleet's operating areas. Today, we have six carrier battle groups cycling in the Second Fleet.

The Pacific

Our increasing commercial interests and security ties in the Pacific have significantly changed our naval planning. If we are to protect our vital interests, we must have forces available to deploy to the Atlantic and Pacific theaters simultaneously. We cannot abandon one theater in order to deal with the other. A great paradox of the 1970s was the reduction of the fleet's size so that it could only be employed in a "swing strategy" --just as that strategy was being rendered obsolete by trade, geopolitics, and the growth of the Soviet Navy.

The Seventh Fleet is our forward Western Pacific fleet, which meets our commitments to Japan, Korea, the Philippines, Australia, and Thailand, and in the critical straits of Southeast Asia, as well as the Indian Ocean. In wartime, we would need to deploy five carrier battle groups to the Seventh Fleet, two battleship battle groups, and four underway replenishment groups. In peacetime, we average over the year the equivalent of one and one-third carrier battle groups in the Western Pacific.

We do not have a separate fleet in the critical area of Southwest Asia, the Indian Ocean and the Persian Gulf, although some have proposed the re-creation of the Fifth Fleet for that purpose. In peacetime, we have the Middle East Force of the Central Command and elements of the Sixth or Seventh Fleet, normally a carrier battle group.

In wartime, we plan for two of the Seventh Fleet carrier battle groups to meet our commitments in the Indian Ocean, Southwest Asia, East Africa, the Persian Gulf area, and Southeast Asia. Notionally, a Seventh Fleet battleship battle group and one underway replenishment group would also be assigned to operate in these areas.

The Third Fleet has responsibility for operations off Alaska, the Bering Sea, the Aleutians, the Eastern Pacific, and the Mid-Pacific region. In wartime, there would be considerable overlapping and trading back and forth between the Seventh and Third Fleets. This happened in the Pacific during World War II. To cover that vast area, we must assign two carrier battle groups and one underway replenishment group.

Strategic Submarine Force. Our national strategic deterrent posture depends heavily upon the credibility and effectiveness of our strategic submarine force and, therefore, its force level ultimately must be determined at a national level. The President has directed that we procure one TRIDENT submarine per year until an ultimate force level is established. This level would be based on the military need to replace the POSEIDON fleet and to take advantage of the enhanced firepower and accuracy of TRIDENT in sizing the national strategic force. The outcome of current arms negotiations may also influence the force level requirement. At a minimum, our analyses indicate that at least 20 TRIDENT submarines are needed to replace the aging POSEIDON fleet.

OPTEMPO in Peace and War. These requirements compel us to deploy a 600-ship Navy. In peacetime, we deploy to the same places we must control in war, but at one-third the tempo of operations. This allows a bearable peacetime burden of six-month deployment lengths and 50 percent time in homeport. Looked at either way, we require the same size fleet to meet peacetime deployments as we do to fight a global war. Taken together, they add up to the following:

TABLE 1
CURRENT NAVY FORCE REQUIREMENTS

	PEACETIME MARITIME STRATEGY	WARTIME MARITIME STRATEGY
	SIXTH FLEET	
CVBG	1.3	4
BBBG	.3	1
URG	1	2
	SECOND FLEET*	
CVBG	6.7	4
BBBG	1.7	1
URG	4	3
	SEVENTH FLEET**	
CVBG	2	5
BBBG	.5	2
URG	1	4
	THIRD FLEET*	
CVBG	5	2
BBBG	1.5	-
URG	4	1

-Fifteen carrier battle groups

-Four battleship battle groups

-One-hundred attack submarines

-Lift for the assault echelons of a Marine Amphibious Force and a Marine Amphibious Brigade

-An adequate number of ballistic missile submarines

*Includes forces in overhaul

**Includes Indian Ocean forces

Note: CVBG = carrier battle group; BBBG = battleship battle group; URG = underway replenishment group.

When escort, mine warfare, auxiliary, and replenishment units are considered, about 600 ships emerge from this accounting--a force that can be described as prudent, reflecting geographic realities, alliance commitments and dependencies, and the Soviet fleet that threatens them. Unless Congress reduces our commitments or the Soviet threat weakens, there is no way to reduce the required size of the U.S. fleet and still carry out the missions assigned to the Navy by the national strategy.

IV. Navy/Marine Operations in 1986: Training to the Strategy

Our maritime strategy is continually tested, refined, and updated through several important processes. The Navy and Marine Corps senior operational commanders review it individually and as a group. It is examined, challenged, probed, and refined at the international level by senior American and allied military and civilian officials. We test it repeatedly in war games and simulations, especially the annual global war games at the Naval War College in Newport, Rhode Island. It is used as the planning base for our major exercises -- Navy, joint, and multi-national -- and the exercises themselves become the crucible for testing its execution and challenging its assumptions. Every exercise provides useful lessons learned, which are fed back into the refining process.

In addition, lessons learned from every real-world crisis or conflict are applied immediately and integrated into our strategy. The Falkland Islands War, our own and Israeli operations in Lebanon, the Grenada intervention, the intercept of the Achille Lauro pirates, the joint U.S. Navy/U.S. Air Force strike on facilities that supported terrorism in Libya, and our constant monitoring of Soviet exercises and deployments are all examples. Much of our budget request each year has been modified since the previous year by the lessons learned from intervening events as applied to our overall strategy. In December 1983, as a result of lessons learned from the Falklands, we accelerated installation of the PHALANX close-in weapons system on ships serving in the dangerous waters of the Middle East. As a result of Grenada operations' analysis, we have modified communications equipment to improve future interoperability with U.S. Army ground forces. The recent Libyan lessons learned highlighted the absolute, essential requirement for dedicated tactical SIGINT aircraft to support the battle group. This requirement, and others such as improvements to the HARM missile, are included in this budget.

Joint Training and Exercises

As the global maritime strategy has been continuously refined, it is directly applied to training. That training, like the strategy, is designed to incorporate not only Navy and Marine Corps forces, but is critically dependent on those of our sister services and the forces of our allies. By eliminating needless overlap in total capabilities, we believe our program will leave no vital maritime tasks uncovered. The past six years have seen major new agreements between the Navy/Marine Corps and the Air Force, the Army, and the Coast Guard. In addition, we have made extensive progress in multi-lateral and bi-lateral agreements with allied navies and air forces.

The fact that U. S. Air Force AWACS, B-52 bombers, and fighters are now an integral part of every significant naval exercise and theater strategy attests to the fact that while inter-service rivalry is strong on the playing fields of service academies, it does not interfere with the effective integration of our operating forces. Last year's joint U.S. Navy/U.S. Air Force strike on facilities that supported terrorism in Libya put the lie to the myth that the Services spend all their time fighting with each other and never work together.

A uniquely valuable aspect of our maritime strategy is that we train to fight in the active waters of expected combat operations, often with face-to-face contact with frontline Soviet surface, air, and sub-surface forces. This capability transmits a true deterrent signal to the Soviets as well as a reassuring signal to our allies as we are able to exploit the flexibility inherent in using international waters for our operations. In conjunction with this emphasis on training where we expect to fight, increased emphasis has been placed on multiple carrier battle group operations in the North Atlantic and Northwest Pacific as exemplified by Northern Wedding and FLEETEX 86. Northern Wedding took place in an area stretching from the East Coast of the United States to the Baltic Sea and involved testing

NATO's capacity to resist mounting Soviet aggression in the Atlantic Ocean, Baltic and Norwegian Seas. More than 150 ships and submarines and hundreds of aircraft operated for three weeks in an intense multi-threat environment, conducting carrier battle group operations, reinforcement convoy operations, and sea control operations in the Baltic approaches. The exercise climaxed with amphibious landings in Norway. Eight NATO allies furnished forces. As the Commander Striking Fleet Atlantic, VADM Charles R. Larson, said in assessing Northern Wedding:

> "You've got to come up here and do it. You can talk about it all you want. You can sit around a table and plan it. You can war-game it. But until you put it all together, until you go to Norway and combine the four elements of the Striking Fleet -- the carrier, the ASW, the amphibious and Marine strike forces -- and coordinate with other NATO commanders, you really don't know if it will work. I think we showed it will work".

FLEETEX-86 was a similar large multi-battle group exercise conducted in the Pacific which demonstrated equivalent naval capability in the Bering Sea and approaches to the main Soviet naval fronts of Petropavlovsk and Vladivostok.

Other Operations

All naval deployments and scheduled exercises develop, in a building block method, dimensions of the maritime strategy. In addition to operations in the Bering and Baltic Seas, we conducted numerous exercises in the Mediterranean, Indian Ocean, Sea of Japan, and the Philippine Sea. UNITAS XXVII honed our skills and those of our South American allies in the waters of the South Atlantic and Southeast Pacific. In all these exercises, interoperability with U.S. Air Force units was the standard. In April, Navy and Air Force units visibly demonstrated their combined firepower by joining together for a perfect six-for-six score during a Harpoon missile firing exercise in the Eastern Caribbean as part of FLEETEX 2-86. Dozens of similar but much smaller operations and exercises occurred throughout the year. The versatility of Navy forces was further demonstrated in the salvage operations to recover debris of the shuttle CHALLENGER from the Atlantic Ocean after her tragic loss. A Navy deep submergence vehicle and several salvage ships assisted in the recovery of more than 70 percent of the shuttle debris.

Submarine Operations

Our SSNs and SSBNs are constantly on patrol in the world's oceans, frequently responding to operations conducted by the Soviets. Last year more than 75 percent of the commanding officers and crews of operational SSNs participated in challenging real world deployments, preparing them for any mission in time of crisis or war. Strategic missile submarines completed 88 patrols during the year, providing the nation with its most survivable deterrent to Soviet aggression and adventurism. During the past three years more than half of our fully ice capable attack submarine crews have gained experience operating deep in Arctic waters. Annually, each of our operational submarines performs demanding ASW and ASUW exercises under tactically realistic conditions at instrumented weapons ranges, off Andros Island in the Bahamas for Atlantic ships and at Barking Sands, Hawaii, or San Clemente, California, for Pacific ships. Each ship launches several exercise torpedoes to demonstrate its ability to place weapons on target. Additionally, operations on these ranges, as well as in open ocean exercise areas, provide opportunities for tactics development, the results of which are carefully analyzed to determine the utility and viability of new concepts for submarine warfare. Lessons learned from these real-world and exercise operations provide the basis for tomorrow's undersea tactics. As a result of this frequent and continuing exposure, the experience, operational readiness, and capabilities of our submarine forces have never been better.

Naval Tactical Air Operations

The air wing on an aircraft carrier is trained and equipped with 85 aircraft of ten different types enabling integrated operations against submarines, surface ships, enemy aircraft and missiles, and enemy forces ashore, including thousands of miles inland, if necessary. No other aviation unit in the world has so many different capabilities with such enormous flexibility. If the task at hand requires intense air defense operations, as was required in support of Jordan in 1970, then the air wing mix is shifted in a matter of days to mostly interceptors; if close air support, or precision bombing strikes are required, then dozens of bombers are added to the wing. The carrier based tactical air power continues to be the most used and useful asset in our military arsenal. It has no equivalent in terms of versatility across the broad spectrum of warfighting requirements from low intensity conflict to global war. The readiness of these tactical air assets to fight and win has never been higher. Deployed carrier air wings enjoyed average mission capable figures of over 87 percent for the past year and proof of the product was amply demonstrated during the operations against Libya.

To integrate effectively so many complex warfare skills requires the most realistic professional training in the world.

"Strike U". Barely two years old, the Naval Strike Warfare Center, or "Strike U", was commissioned in Fallon, Nevada, to develop, prove, and instruct strike tactics. Emphasis is on strike planners and realistic threat simulation for advanced air wing training during shore based turnaround cycles. Strike U has already made a significant impact on the way we plan and execute strikes from our carriers. Its influence was a significant factor in the success of the Libyan air strike last year.

"Top Gun". The Naval Fighter Weapons School at Miramar, California, better known as "Top Gun", remains the premier center of air-to-air combat expertise in the world. At Top Gun we teach our best fighter pilots how to become the world's most proficient at air combat maneuvering while developing and proving new air superiority tactics.

"MAWTS-1". Marine Aviation Weapons and Tactics Squadron One at Yuma, Arizona, continues to be the center for Marine Corps fixed and rotary wing aircraft training and tactics development. Focusing on optimum use of Marine Air to establish air superiority and support troops on the ground in amphibious operations, MAWTS-1 has led all services in establishing tactics and doctrine to weld together air and land forces operating in concert. MAWTS-1 works closely with Strike U and Top Gun in all areas of aviation training, tactics development, and hardware procurement. This triad of MAWTS-1, Strike U, and Top Gun gives the Navy/Marine Corps team the "right stuff" to get our aircrews ready to fight.

"TACTS Range". Our Navy and Marine squadrons are also benefiting from improved tactical Air Combat Training Systems (TACTS). TACTS provides air-to-air and air-to-ground data, display, and threat simulation for entire air wing strikes. Training benefits from this ground truth range have been unparalleled, resulting in quantum improvements in tactical planning and in-flight execution. Additional TACTS ranges are being built to meet east and west coast training requirements in the United States and at selected overseas locations. All Navy ranges share time and tactical wisdom with the U.S. Air Force.

"Super CAG". January 1986 marked the beginning of a new era in naval aviation when Carrier Air Wing Eight (CVW 8) became the Navy's first restructured carrier air wing commanded by a senior air wing commander. All carrier air wings will be restructured by FY-88. The primary focus of the restructured air wing is to improve our strike warfare capability by increasing the rank, experience, and training of the Wing Commander. The prospective wing commander undergoes an extensive nine month training course with emphasis on intelligence, planning, and integrated strike tactics. Assisting the senior air wing commander will be a post-command commander deputy. The deputy air wing commander will be responsible for the day-to-day operations of the air wing allowing the senior air wing commander to direct his attention toward training, readiness, planning, tactical innovation and total integration of all battle group assets involved with putting weapons on targets.

Air Anti-Submarine Warfare Operations

Modern Air ASW requires the tactically integrated mixture of platforms and sensors to counter the mix of submarine threats in a variety of possible engagement scenarios. In today's defense of the sea lines of communications, we bring to bear the proven mission capability of the P-3C, now fully integrated with the carrier battle group through continuous at sea exercises and real-world operations. The P3-C performance -- especially that of the Update III, operating in concert with the supporting SSN and the organic air assets of the battle group -- has provided significant improvements in our ability to defeat enemy submarines.

The S-3A continues to operate very effectively in the outer and mid zones of battle group ASW operations. Currently mission capability rates of 75 percent and greater are up from the 30 percent range in 1981 representing a true success story resulting from the great personnel improvement and increased expenditures for spares. The S-3B Weapons System Improvement Program which will provide capabilities equivalent to the P-3C Update II, is progressing well with initial operational capability programmed in FY-88.

The SH-3 is still the workhorse for inner zone battle group defense. This aging aircraft will be replaced with the SH-60F which will utilize the same airframe as the SH-60B. The LAMPS MK III, SH-60B, has introduced an exciting new multi-threat asset to battle group operations. Combined with the FFG 7 control platform, it has greatly increased battle group ASW capability as well as over the horizon targeting. The SH-2F LAMPS MK I continues to operate as an essential component of our ASW frigates and destroyers. An SH-2F avionics upgrade commenced in FY-87 to support our Naval Reserve Force out through the year 2000. Together, these improved ASW aircraft have brought a new era of confident, continuous tracking of target submarines.

Surface Warfare Operations

The growth in the capabilities of our multi-purpose Surface Warfare forces has given us a degree of flexibility in deployment of our forces which we have not had in history. Our investments in battleships, AEGIS cruisers, anti-submarine warfare platforms, and amphibious forces are paying large dividends in support of our maritime strategy.

The operational flexibility afforded by the reactivated battleships was demonstrated when the USS NEW JERSEY (BB 62) and her escorts deployed to the Western and Northern Pacific from May through October of the past year. With the carrier USS MIDWAY (CV 41) unavailable due to an extended maintenance period and the USS ENTERPRISE (CVN 65) Battlegroup occupied in the Mediterranean, NEW JERSEY provided a vital U. S. presence west of Pearl Harbor and east of Suez. USS MISSOURI's (BB 63) around the world shakedown cruise and the Central American presence operations conducted by USS IOWA (BB 61) were also signal demonstrations of our battleships' ability to support significant national tasking.

To fill the operational requirement for intelligence and reconnaissance (RECCE) of targets where manned RECCE was not appropriate (such as Libya), the Navy has an aggressive program to acquire a family of low cost Remotely Piloted Vehicles (RPV) deployable from surface ships. The Israeli MASTIFF RPV system was purchased as a means of rapidly providing short range RPV capabilities for contingency operations and was deployed to the Western Pacific last year aboard an amphibious ship. The U.S. built PIONEER RPV, the follow-on system to the MASTIFF, recently deployed on IOWA, and was a great success in spotting Naval Gunfire and in Over-the-Horizon Targeting in fleet exercises.

During the operations off Libya, USS TICONDEROGA (CG 47) and USS YORKTOWN (CG 48) showed dramatically and convincingly the capabilities of the AEGIS system by maintaining flawless pictures of the surrounding airspace, which proved integral to the success of those operations. In fleet exercises the AEGIS system has enhanced our open ocean training capability by providing three dimensional air warfare reconstruction, and in conjunction with Mobile Sea Ranges for missile firing exercises, has improved range coverage by orders of magnitude.

1986 also saw USS BUNKER HILL (CG 52), our sixth TICONDEROGA-class cruiser, become the first U.S. warship to fire missiles from a vertical launching system (VLS) in May. The extraordinary capability of the TOMAHAWK cruise missile was demonstrated by the June 1986 firing by the nuclear powered cruiser USS LONG BEACH (CGN 9) in a pure open-ocean environment along the Aleutian Islands off Alaska. The missile flawlessly executed its flight profile along the Aleutians to its land target. The introduction of the TOMAHAWK-capable vertical launch system into our AEGIS cruisers and SPRUANCE class destroyers is providing a rapidly expanding TOMAHAWK inventory at sea and enormously complicates Soviet targeting of so many dispersed launch platforms.

Initial deployment of the AN/SQQ-89 anti-submarine warfare combat system has greatly enhanced our surface ASW posture. This system is the first truly integrated surface ASW combat system. It combines improved sensors, including the AN/SQR-19 tactical towed array sonar, sophisticated on board acoustic data processing and display equipment, and associated weapons control systems for enhanced detection, classification, and correlation of sub-surface contacts. The USS MOOSBRUGGER (DD 980) used this system in the Mediterranean to maintain contact on real-world and exercise submarine contacts for unprecedented durations at ranges up to three times greater than previously the norm. The T-AGOS Ocean Surveillance Ship USNS STALWART became the first ever to deploy to the Mediterranean and with its onboard Surveillance Towed Array Sensor System (SURTASS), provided long range support for Sixth Fleet Battlegroup operations. T-AGOS ships also became operational for the first time in the Northern and Western Pacific forward areas and demonstrated better than predicted performance. To hone practical skills in surface ASW, we train our surface ASW teams at sea on instrumented ranges at Hawaii, San Diego, and in conjunction with submarine prospective commanding officer training at Andros Island in the Bahamas. Use of the instrumented ranges allows actual firing of exercise weapons and adds a significant degree of realism to ASW training.

ASW Training Group Atlantic, or "ASW U", is a focal point for developing and teaching coordinated tactics for fighting the ASW battle. It acts as the direct agent for battle group coordinated training, works with other ASW schools to assess continually the appropriateness of the continuum of ASW training, and acts as a central repository and distribution point for tactical development initiatives.

Special Warfare Operations

Increased attention to naval special warfare continues to sharpen the ability of this unique warfighting instrument in support of the fleet. The size of the SEAL community has increased by 30 percent over the past five years, which is half the total new growth planned by 1991. Among other developments, a third special warfare officer was selected to flag rank in early 1987. The Naval Special Warfare Center was established as an independent command in 1985. By putting ideas into action -- as in the development of tactics such as SEAL support in anti-terrorist response options -- we are continuing to transform the concepts that underlie naval special warfare into real-world capabilities in support of the fleet.

In the fall of 1986 a Naval Special Warfare planning cell was established within the Sixth Fleet which will become a Naval Special Warfare Unit supporting fleet operations in the Mediterranean. Another Naval Special Warfare unit is planned for SOUTHCOM as a means to enhance our Navy presence in Latin American countries. Congress recently directed the establishment of a new unified command in connection with the enhancement of all DOD Special Operations Forces. The Navy Department is moving quickly to establish the Naval Special Warfare Command as the Navy component of this unified command. The Naval Special Warfare Command, in conjunction with the recently established Naval Special Warfare Center, will enable the Navy to contribute to joint interoperability and improved effectiveness of all Special Operation Forces.

Fleet Marine Force Operations

Navy-Marine Corps amphibious assault forces conducted 39 exercises in 1986 in a variety of geographic locations and environments as part of naval, joint, and combined operations. Marine Air-Ground Task Forces (task organized entities made up of aviation combat, ground combat, combat service support, and command elements) performed these exercises in such diverse locations as Korea, Thailand, Australia, the Philippines, Norway, the Mediterranean, the Caribbean, and on both coasts of the continental United States. Significantly, over 20,000 U.S. Marine Corps Reservists participated in 15 of the major exercises.

Our Norway Prepositioning Program matured markedly this past year. During February and March, highly successful Exercise ANCHOR EXPRESS-86 was conducted to test operational and logistical concepts associated with this prepositioning program. Important experience was gained as the equipment withdrawal and return to its temporary storage facilities in Norway were done in an almost flawless manner. The current prepositioned equipment/supply levels for ground combat equipment; for aviation ground support equipment; for ground ammunition; and for bulk POL (petroleum, oil and lubricants) have all continued to move toward programmed levels.

Development of the Maritime Prepositioning Ships (MPS) Program continues to be impressive and the strategic mobility of Marine air-ground task forces has been significantly enhanced. Four MPS exercises were among those conducted this year. During May, the last of the 13 MPS ships, the Sgt. WILLIAM R. BUTTON, was delivered, and by 30 September, MPS Squadron 3 had achieved full operational capability and deployed to the Pacific. Another milestone in this program's progress was the activation of the Biennial Maintenance Cycle Command Group at Blount Island, Jacksonville, Florida, on 1 September. During the spring and summer of 1987, the ships of MPS Squadron-ONE and MPS Squadron-Two will start their biennial maintenance cycle.

The overall strength of the naval forces has been further enhanced by the continued integration and deployment of Navy and Marine TACAIR squadrons within Navy carrier air wings and Marine Aircraft Groups. The current interoperability within the Department of the Navy consists of Marine A-6 Squadrons deployed as part of carrier air wings which, together with Marine F/A-18s and EA-6Bs, participated as an integral part of the carrier based retaliatory strikes against Libya. We now routinely interchange land based Marine Corps attack squadrons with Navy carrier based squadrons. As the Marines deploy with the carrier air wing, Navy squadrons fill the requirements at the Marine Corps Air Station in Iwakuni, Japan. This planned increased interoperability will significantly enhance the Navy's warfighting flexibility.

The resurgence of our ship construction program will procure the third and fourth of five WASP-class LHDs and the first of five LSD 41 Cargo Variants in FY 1988-92. This procurement will contribute to attainment of the Navy's amphibious lift objectives. In addition, the first operational landing craft air-cushion (LCAC) unit has been activated at Camp Pendleton, California. Using the LCAC, 60 ton loads can be carried ashore at speeds in excess of 40 knots, independent of a coast's hydrography.

Foreign Policy Support

A good example of the peacetime presence mission carried out by the Navy operating in support of the maritime strategy was the around-the-world shakedown cruise of the battleship USS MISSOURI (BB 63). Departing Long Beach in September of 1986 on a 3-1/2 month cruise MISSOURI demonstrated in a very visible way the power projection of a revitalized maritime strategy with TOMAHAWK and HARPOON missile capabilities supplementing her impressive 16" gun battery. At her first international port visit to Sydney, Australia, more than 6,000 Australians visited her. Following a transit of the Suez Canal, MISSOURI paid a historic and highly symbolic port visit to Istanbul, Turkey, where forty one years earlier she had arrived as a demonstration of commitment by the U.S. to prevent the imminent Soviet threat to Turkey. During a later visit to Lisbon, Portugal, Portuguese President Mario Soares embarked for a two-hour visit during which he said, "This ship is an ambassador everywhere it goes", underscoring the positive and most impressive impact of foreign port visits by U.S. Navy ships. MISSOURI returned home in December after transiting the Panama Canal. She steamed for more than 24,000 nautical miles, visited eight foreign ports and was visited by over 25,000 foreign citizens during this impressive cruise which served as a signal demonstration of U.S. resolve and commitment to our allies.

U.S.-China Naval Cooperation. America's national interests are served by a stable China that contributes to the peace of the region. Active improvement of Sino-American relations will advance that process. China is a friend - not an ally. Our developing defense relationship with China is and will be based on our common interest in safeguarding the Pacific region from Soviet aggression, not on a formal military alliance.

In view of these realities, the U.S. Navy has adopted three approaches to the improvement of the U.S.-China maritime defense relationship. First, we are discussing technological cooperation to improve China's defenses against external threats in its regional waters, specifically measures that strengthen China's surface ship anti-submarine warfare capability. In particular, in August 1986 an FMS agreement was initiated with the Chinese for the purchase of the MARK 46 MOD 2 ASW torpedo. Second, we are conducting high-level discussions begun during Secretary Weinberger's 1983 visit and reinforced with my visit in 1984 and the Secretary of Defense's second trip in 1985. In April 1986 then Chief of Naval Operations, Admiral Watkins, met with Chinese defense officials. The Commandant of the Marine Corps, General Kelly, is scheduled for meetings in March 1987. Finally, we are engaging in functional military exchanges, including exchange of military personnel for training, more meetings of Chinese and U.S. warships at sea (the most recent of which was the PASSEX in the South China Sea in 1986) and ship visits. The first visit of U.S. warships to China since 1949 took place this past year in November when the USS REEVES, USS OLDENDORF, and the USS RENTZ docked at the port city of Quingdao. This visit has special significance since Quingdao was the homeport of U.S. Naval Forces, Western Pacific (Seventh Fleet) and the site of the U.S.-run (Nationalist) Chinese Naval Training Center immediately prior to Communist victory in 1949. It is now the homeport of China's North Sea Fleet, which has primary responsibility for guarding against the Soviet naval threat.

Operations off Libya. The maritime strategy emphasizes flexible response and combat readiness that embraces more than preparations for global operations against the Soviets. It provides naval forces worldwide to deter aggression and - should this fail - to use force as necessary to ensure a favorable outcome for U.S. interests. In 1986 the effectiveness of our peacetime and crisis response operations was demonstrated once again in actual combat operations off the coast of Libya. In March 1986 Libyan surface-to-air missile attacks and missile carrying patrol boats threatened our fleet and aircraft operating in international waters. In response, aircraft assigned to our three carrier battle groups composed of USS AMERICA (CV 66), USS CORAL SEA (CV 43), and USS SARATOGA (CV 60) attacked and sank at least two Libyan patrol boats and scored a direct hit against the Libyan battery from which the SAMs had been launched. Then in April, the Navy and the U.S. Air Force combined forces to conduct a joint strike on facilities that supported terrorist activities in Libya in response to evidence of Libya's direct involvement in terrorist acts. Libyan anti-air defenses, which are the heaviest and most modern outside the Soviet Union, supported by 3,000 Soviet advisors, were neutralized and Libyan air defense surveillance was jammed to allow Air Force FB-111s and Navy A-6E INTRUDERS to penetrate Libyan air space at low altitude, and in total darkness, to bomb targets in Tripoli, Benina, and Benghazi, Libya. That Navy and Air Force combat units separated by nearly 3,000 miles arrived on coordinated targets within seconds of each other tells more than words can say about the reality of truly integrated Air Force-Navy operations. These events also underscored American advantages in technology - advantages which, as in the Libyan operation, assure success while minimizing losses.

Reserve Support of Naval Operations

Navy and Marine Corps Reserve support of, and integration with our active force structure is substantial, and is demonstrating in a very visible manner the direct application of the Total Force Concept to the maritime strategy. Recent exercises and real-world operations continue to bear this out.

- Naval Reserve C-9 transport aircraft provided direct support to our operations in Beirut during 1983 and 1984 and provided direct support to our operations in Grenada during the same period.

- The Ready Reserve provided 349 volunteers for three-week tours of duty aboard the battleship NEW JERSEY during its 11-month 1984 deployment, enabling most of the crew to rotate home for leave.

- In 1986 the Naval Reserve's 27 C-9Bs and DC-9s collectively flew 12,240 sorties for 22,000 flight hours in fleet logistics support, including in-theater support for Mediterranean and Gulf of Sidra/Libyan operations.

- Naval Reserve helicopter squadrons provided CV plane guard services and combat search and rescue capabilities to the SIXTH Fleet in support of the Gulf of Sidra and Libyan operations.

- Naval Reserve Force (NRF) frigates participated in numerous fleet exercises and the NRF USS RACINE (LST 1191) also participated in "Varsity Player 86-3" demonstrating the smooth integration of the active and reserve ship crews, Marines, and SPECWAR forces in an amphibious operation.

- Naval Air Reserve squadrons provided over 5,000 adversary sorties in support of active training for Navy fighter crews.

- And for the last three years reservists on voluntary temporary active duty have augmented squadrons aboard deployed carriers, flying hundreds of missions in the Gulf of Sidra and Libyan operations.

The Naval Reserve integration into the active force will continue to be a crucial factor in the Navy's response to routine or urgent national tasking.

Polar Operations

In 1986 we conducted ICEX 1-86, which was the most ambitious Arctic Ocean exercise conducted to date, and was highlighted by the rendezvous and surfacing of three of our nuclear powered submarines at the geographical North Pole. You can be assured that the Soviets did not miss the significance of this impressive event. These annual exercises, combined with other Navy and Marine Corps operations in polar regions provide us with the experience we need to test and improve the tactics and equipment necessary to face any adversary in the harsh and unforgiving environment characteristic to these areas.

At the other end of the world, we have a continuing support effort underway in conjunction with the National Science Foundation (NSF), the executive agent for the United States Antarctic Program (USAP). Each year a contingent of Navy volunteers provide necessary logistic support for NSF's research endeavors on the earth's southernmost continent. Commander, Naval Support Force Antarctica, with his staff of 450 and a squadron of seven ski-equipped C-130s and six Huey helicopters, coordinates all logistics and communications support for operations at four camps: McMurdo Sound, Siple Station, Palmer Station, and the South Pole. Additionally, he controls the Coast Guard icebreakers which make possible annual replenishment ship visits to McMurdo Sound. The efforts of this hardy group through the years have assisted in providing key scientific data, enabling NSF personnel to expand man's knowledge. The more practical lessons learned from experience with extended cold weather operations are applied to improved clothing and support equipment for cold weather operations Navy-wide.

Sealift Operations

The third of three Maritime Prepositioning Squadrons became operational in 1986. Each squadron carries the equipment required for a Marine Amphibious Brigade. They provide tremendous flexibility in rapidly deploying our Marines to any trouble spot that borders on the world's oceans. The first of two aviation logistics support ships (TAVB) also became operational, providing a rapid sealift capability to move a Marine Corps aviation repair and maintenance organization to a forward operating area. Additionally, we accepted delivery of USNS MERCY, the first of our new one-thousand bed hospital ships (TAH). We enhanced the capability of our Ready Reserve Force with the purchase of 13 ships during fiscal year 1986. This brings our inventory of these strategic sealift assets which are critical to the rapid deployment of our fighting forces to 81 ships. We also improved our capability to move supplies ashore in a port constrained environment. Evaluation is complete and procurement is in process for our second Offshore Petroleum Discharge System (OPDS). This joint Army/Navy initiative provides a tanker delivered, rapidly installed system capable of pumping petroleum products directly to a beachhead from a tanker anchored up to four miles offshore. The contract has also been let for our first Cantilevered Modular Elevated Causeway (ELCAS), a portable pier system which can be carried on a container ship and constructed above rather than in the surf. ELCAS represents a major improvement in both transportability and safety.

The Military Sealift Command (MSC) has continued to improve mission capability. Its 129 ships provide a Strategic Sealift Force readily available to deploy forces rapidly, a highly capable Naval Fleet Auxiliary Force for direct support of the sea control and power projection missions of the Navy and the Special Mission Support Force which is involved in hydrographic/oceanographic research and surveys worldwide. Operational training exercises such as REFORGER, BOLD EAGLE and RAINBOW REACH further sharpened the skills of both the active duty and reserve personnel assigned to MSC during 1986. REFORGER and BOLD EAGLE actually involved movement of men and material. REFORGER demonstrated our capability rapidly to transport men and equipment to West Germany through established ports on the continent. BOLD EAGLE exercised our ability to transport equipment to a beach head area, and then bring it ashore without the benefit of port facilities. RAINBOW REACH was a command post exercise (CPX) which intensively exercised our reserve components in a wartime scenario.

While the MSC has improved dramatically, there has been a continued, precipitous decline in the size of the U.S. merchant marine. Since 1970 U.S. flag liner companies have decreased from twenty to only seven. Two of those seven companies are now operating under provisions of Chapter 11 of the Federal Bankruptcy Code while another has just come out from under Chapter 11 protection. The number of militarily useful U.S. flag merchant ships has decreased during the same period from over 600 to about 360. Our decision in 1981 to bring added emphasis to sealift cannot completely compensate for the distressing decline of the U.S. merchant marine.

Space Operations

Effective utilization of space based systems has become a prerequisite for execution of the maritime strategy. Our long-haul communications, intelligence and warning, and environmental data come with increasing frequency from space borne and space related systems. In 1986 the Naval Space Surveillance System (NAVSPASUR), assigned to the Naval Space Command, was activated as the alternate Space Surveillance Center to the facility at Cheyenne Mountain, Colorado, and serves routinely as the primary facility. The space tracking data which has been provided to tactical naval units over the years by NAVSPASUR is now available to USCINCSPACE for broader applications.

Another success enjoyed by the Naval Space community in 1986 was the December launching of the UHF communication satellite FLEETSAT 7. In addition to enhancing our satellite communications constellation, this particular satellite hosts a developmental EHF package which tests MILSTAR technology.

The Navy and Marine Corps will continue to assess requirements, roles, and missions in space. We are committed to apply resources in those areas where unique naval capabilities contribute to national objectives, such as the Strategic Defense Initiative. The Soviets see in our SDI initiative an engine for innovation and scientific research that will widen the technological and scientific gaps between our societies. Forward deployed naval forces have unique warfare applications that can make significant contributions to strategic defense. The Navy is an active participant in space and is aggressively exploring additional roles in strategic defense. Indeed, several experiments involving Navy platforms in SDI technologies will be conducted in the near future. Navy's subsurface launch platforms, laser and microwave research programs, and other electronic warfare efforts all have direct application to strategic defense.

The technologies which SDI would develop cannot, of themselves, deter aggression. Credible deterrence requires a concurrent defense effort directed at manned aircraft and cruise missiles. The Navy's contribution in this arena is significant. By fact of geography and our forward deployed strategy, the detection and engagement of submarine launched cruise missiles (SLCMs) and their submarine launch platforms are maritime missions. The same is also true in most scenarios involving air launched cruise missiles (ALCMs). The Navy has pioneered in many technical areas which affect the ADI surveillance, battle management and engagement problems. Our tactics and weapons for projecting naval force through battle group operations are directly applicable to the Air Defense Initiative (ADI). In a cooperative inter-agency effort, the Navy is actively examining current weapons systems and research and development programs in anti-air warfare, and anti-submarine warfare to discover the architecture needed to counter the airborne threat to the United States.

Drug Interdiction Operations

In 1986 the Navy and Marine Corps once again made significant contributions in support of the national drug law enforcement effort. Four Navy P-3A aircraft and 11 infra-red detecting sets have been loaned to the U.S. Customs Service. Additionally, Navy finalized agreements to loan and provide training, as well as logistics support, for two E-2C airborne radar platforms to be operated by Customs and two to be operated by the U.S. Coast Guard. Navy active and reserve forces have participated aggressively in the day-to-day enforcement effort. Of the 15,827 flight hours flown by the military services in FY 1986 for drug law enforcement, the Navy and Marine Corps contributed 60 percent, or 9,464 hours. Also, Navy provided 1287 ship steaming days in direct support of drug interdiction operations in FY 1986 with the recently concluded Hat Trick II operation resulting in the seizure of 750,000 pounds of illicit drugs.

Security, Counterterrorism, and Counterespionage

The best strategy, tactics, and equipment will count for little in a war with the Soviets if their key ingredients are compromised through espionage, theft, or treason. At sea and ashore we employ operations security, emission control, and other specialized methods to counter Soviet intelligence. We have withdrawn 362,000 clearances and reduced the number of individuals with access an average 38 percent. We continue to improve our physical security posture with major MILCON expenditures on sensor/assessment access control installations to safeguard critical readiness assets. These include enhanced protection for flight lines, waterfronts, ships and aircraft by fielding new, more sophisticated security systems now coming out of R&D efforts. We are also restructuring, expanding and upgrading our security forces to better deter and defeat terrorism and criminal dissident activities, with professional, well-equipped regular and auxiliary security forces. Cadres of Marines will be added to Navy Security Departments at over 80 installations. The purpose of this action is to capitalize on the existing security skills of Marines and their potential to train and supervise Navy personnel in these techniques. Marine officers or senior NCOs will be assigned to about 50 key installations as Security Operations Officers. All of the installations will have one or more Marines assigned to train sailors in small arms shooting and sentinel skills, and to organize and supervise sailors who will form an auxiliary security force at each Navy installation. Improved security training and counterterrorist training will be provided at Norfolk, Virginia and Mare Island, California, commencing in May of 1987. A stronger security sensitivity is also being developed through an intensive training effort to provide anti-terrorism awareness and a capability to all Navy personnel beginning at the recruit entry level. The Naval Security and Investigative Command has continued to enhance security, counterintelligence, and criminal investigations within the Department of the Navy.

V. Are We Buying the "right" Navy for the Maritime Strategy?

Because research and development projects span decades, and ships take many years to build, the makeup of our fleet cannot change radically with each administration. Instead, the fleet evolves over time with policy and technology applied to meet the threat of the future. The fleet today reflects the practical wisdom of the deck plates, the theoretical development of the labs, and lessons learned from past exercises and combat experiences. The size and design of our ships and weapons reflect the inputs of sailors in daily contact with Soviet VICTOR submarines, KIEV-Class carriers, and advanced Soviet aircraft. The wisdom of common sense and the world's leading technological base are tremendous advantages, brought in to the design of today's Navy and Marine Corps.

Of course, there are many kinds of ships not in the fleet today that could serve us very well. The British INVINCIBLE-class vertical or short take-off and landing (V/STOL) carriers, for instance, are quite capable anti-submarine warfare ships. There are many attractive European frigate designs. There are also diesel submarines in the navies of our friends that fulfill very effective roles. If our allies around the world were not buying these vessels, the burden would fall upon us. But happily, they are carrying a considerable share of the cost of naval defense and American taxpayers do not have to fund a Navy greater than about 600 ships.

High-tech vs. Cheaper, Simpler. We reject the simplistic argument of some, that smaller-simpler-cheaper is better. Our tremendous edge in technology is an advantage provided by our culture and our economic system. We must build to this advantage, and not trade it away for cheaper, smaller, less capable ships and aircraft built in greater numbers, which is the forte of a totalitarian, centralized, GOSPLAN economy.

It would be a great mistake for us to adopt a defense strategy at sea--any more than on land--that attempts to match totalitarian regimes in sheer numbers of cheap reproducible items. Time and again the high tech solution --tied together with common sense--has proven to be the wisest investment, and by far the most advantageous one for the United States and its allies.

The military actions of the past year clearly indicate the benefits of high technology forces. The three exercises we held in the vicinity of the Gulf of Sidra and then the joint air strike with the United States Air Force against Libyan terrorist targets, were all conducted under the most demanding, restrictive, and difficult conditions of peacetime crisis management. To complicate such demanding Rules of Engagement, the air strikes were all done at night, at low level, and against one of the most sophisticated air defense systems outside of the Soviet Union. We went in, utilizing our high technology weapons, and put the bombs on the targets. Not a single one of the nearly 50 Libyan SAMs that were fired ever hit a target. During these operations, American aircraft made 153 intercepts of Libyan Air Force attempts to overfly the American fleet, intercept the American fighter CAP (Combat Air Patrol), or gather intelligence information. Despite a force of nearly 500 modern tactical aircraft, not a single Libyan aircraft was able to get into a firing position before it was already locked in a U.S. aircraft or AEGIS platform missile sight. During these events, our E2-Cs and AEGIS cruisers provided a total air mass superiority such as has never been seen before in the Mediterranean. There was not a single potentially hostile surface ship or aircraft that moved within a 600-mile area that was not under the cognizance and controlled environment provided by the AEGIS cruisers and E-2Cs. When the small, cheap, cruise missile boats in the Libyan navy made runs at the battle force, they were covered with the HARPOON missiles -- at least two boats were destroyed as they approached firing ranges on U.S. units. We were able to do all this because of the investment in the high technology of the F/A-18, the F-14, the E-2C, the A-6E, the EA-6, LAMPS III, and the AEGIS cruiser -- an investment that indicates precisely the path we must follow.

We are developing and building the "right" Navy. Although there are plenty of other kinds of ships we would like to have, and we could certainly use the 900-ship Navy long advocated by the Joint Chiefs, we have stayed consistently with the 600-ship fleet goal because we are prepared to bet that our allies will continue to maintain modern, effective navies and air forces. We are prepared to accept the risk that our nation will make the right decisions to prevent loss of forces early in a conflict, and we think that this is a prudent risk to run in order to have an affordable Navy.

VI. Can We Afford the Navy this Nation Needs?

Some recent commentaries have suggested that we cannot afford to sustain, or properly man, a 600-ship Navy. They are in error. We are doing both and will do so in the future. We have now, under construction and fully funded, all of the ships necessary to attain a 600-ship Navy centered on 15 carrier battle groups, four battleship battle groups, and 100 nuclear-powered attack submarines.

Our current and future budgets reflect the "sustaining rate" for the 600-ship Navy, an average of about 20 ships a year in new construction. The actual number could be higher or lower in a given year, depending on the block obsolescence of various types of ships, and economies of scale exacted in any given year. With an average life of 30 years (45 years for our carriers), 20 ships per year will sustain a permanent fleet of 600 ships.

This "good news" should not blind us to the requirements of the future. A future of zero-growth budgets--or worse--would mean that we will be unable to sustain a 600-ship Navy--or a capable defense. We know from painful experience in the 1970s that the damage done by no-growth funding is far greater than the mere percentage budget loss would indicate. With zero-or negative-growth budgets, the industrial infrastructure vital to fleet construction and support shrinks dramatically. The result is a loss in competitive bidding and a return to sole-sourced monopolies. Rates of production must then be cut, individual unit costs increase dramatically, productivity falls, and, in the final accounting, the American taxpayer gets much less "bang for the buck." Even worse is the decline in the quality and morale of the people who man the fleet, as we saw in the late 1970s.

Is sufficient defense funding beyond our means? Throughout the past two decades, many commentators favoring a reduced defense effort have repeatedly predicted that the American people would not support sustained defense growth. That refrain is still put forward by some as a fact of life. While it may express their hopes, it is not supported by history. That view takes as its norm the flat or even declining figures of the immediate post-Vietnam War period. In fact, except for those years, post-World War II naval budgets have maintained growth commensurate with our national economy. The middle and late Seventies, by contrast, are now being seen as an anomaly in U.S. history. It is not apparent that the American people wish to "restore" that aberrant pattern of declining numbers of ships, morale, and readiness. When you look at the troubled global environment, the question is not whether we can afford a 600-ship Navy, but whether we can afford not to sustain this level of effort. The freedom and quality of life of future generations of Americans depend on this commitment.

Management Initiatives. Those who look pessimistically at the costs of sustaining our Navy assume that because the bloated, inefficient, bureaucratized, over-centralized congressional-executive Defense system has evolved for some 30 years that it will remain forever. We do not accept that. Moreover, under Secretary Weinberger's leadership we have shown in the Navy a historic reversal of the trend of inevitable cost increases.

The remarkable progress achieved in six years in the naval recovery program is testimony to the success of the vigorous program of improved management and acquisition reform instituted by Secretary Weinberger. Six years ago he reversed a long and disastrous trend toward centralization and bureaucratization of management, with its attendant diffusion and destruction of line accountability. His leadership has brought about a new discipline and new accountability. Management authority has been returned to the Service Secretaries and they have been held accountable for achieving real reform in the development and procurement process. In so doing, we have insured consistency with the organizational provisions of the Goldwater-Nichols Defense Reorganization Act of 1986. The Congress should take special note of the fundamental changes made in the management of the Department of the Navy. The changes reflect the fact that the Navy Department had already instituted reforms to improve the way we do business, well in advance of the hue and cry for defense reform. They show that we have introduced real and effective measures to exact and impose competition, discipline, austerity, and accountability in the management of the Department of the Navy.

True Competition. We have sought true competition, not merely the appearance of competition through source selection followed by decades of monopoly production. We have pursued a policy of establishing second sources in every appropriate program. We have raised the percentage of competition in our shipbuilding from 15.7 percent in 1980 to a planned 100 percent in our 1988 shipbuilding program, producing $6.8 billion in cost underruns in private sector shipbuilding programs since FY 1983. In FY 1986, competitive awards for aviation spare parts procurement were more than four times the percentage awarded competitively in FY 1983. Contracts for shipboard parts procured in 1986 were 10.5 percent lower on average than the previous year procurements marking the third successive year in which we have achieved a significant decrease in average price.

In 1983 we established at flag rank a Competition Advocate General, the first such position within the Defense Department. He now has a network of more than 250 Competition Advocates throughout the Navy's acquisition commands. Defense contractors feel the heat of competition and are making the productivity improvements to lower their costs so they can effectively compete. Dual source acquisition strategies are producing remarkable results as contractors strive to undercut their opponent's price in order to win a greater share of Navy business. Innovative teaming arrangements are being made by industrial firms, who join forces to form more competitive teams. The Navy is reaping the benefits of these arrangements: we are getting the best expertise available in the marketplace at the most competitive price.

In FY 1986 we awarded $23.2 billion competitively, or 51.9 percent of all Navy procurement dollars. That performance reflected $3 billion more than FY 1985 and $13.8 billion more than we awarded competitively in FY 1982. Over 72 percent of all individual contract actions executed in FY 1986 were competitive, versus 50 percent in FY 1984 and 30 percent in FY 1982.

Shipbuilding Competition. Navy contracts in the shipbuilding industry include new construction ships, ship overhaul and repair, major ship marine systems, and materials applied in the operation and life cycle support of ships and ship systems. Shipbuilding industry data illustrate the three dimensions of the Navy's improving competition performance in this industry: increasing competitive procurements, reduction in sole source procurements, and conversion of follow-on procurements to full and open competition. Contract savings from this new competitive approach in shipbuilding have been enormous. In the FY 1982 five-year defense plan submitted in March 1981, nine cruisers in FY 1984, 1985, and 1986 (of the twelve cruisers then proposed) were estimated to cost almost $11 billion. After second sourcing, in the FY 1987 budget, the estimated cost of these nine cruisers in FY 1984-86, the years of competition to date, is now under $8 billion. This second source initiative has, thus, contributed to about $3 billion in cost reduction of those nine ships.

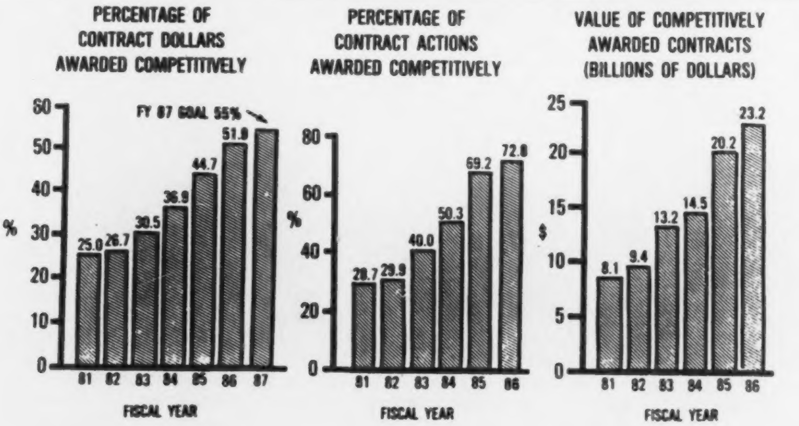
During FY 1986, 83.1 percent of Navy new ship construction dollars placed under contract were awarded competitively. Savings in shipbuilding amounted to $1144M in FY 1986, and included $282M in the CG 47 class AEGIS Cruiser Program, $255M in the SSN 688 class Attack Submarine Program, and $280M for the lead ship in the LHD class amphibious V/STOL carriers program. As in previous years, all small craft were awarded competitively.

Overhaul Competition. In FY 1986 all private sector surface ship overhauls were solicited and awarded competitively. Confronted with unrealistically high bids for private yard overhaul of SSBNs, we took similar action in the submarine overhaul program. The results have been impressive as contract prices have spiralled down instead of up in response to competitive pressure. During FY 1986, each of the formerly sole source ballistic missile submarine (SSBN) overhauls was competed.

Continuing the public/private shipyard competition begun in 1985, the Naval Sea Systems Command conducted public/private competition on six surface ship and four submarine overhauls, three surface ship and three submarine Selected Restricted Availabilities (SRAs) and one submarine Extended Refit Period. The full impact of public/private competition for ship repair has yet to be quantified, but an estimated $200M in initial dollar savings, as well as improved quality and better adherence to schedule is expected.

On behalf of the U.S. Army, the Military Sealift Command (MSC) contracted for the purchase of four Logistics Support Vessels (LSVs), using a vessel performance specification and a flexible delivery requirement that allowed offerors to propose either conversion of existing vessels or new construction. The resulting contract was $16M lower than cost proposals based on design-oriented specification. The list goes on and on.

**DEPARTMENT OF THE NAVY
PROCUREMENT COMPETITION PERFORMANCE**



Gold Plating Control. Without question, competition and fixed-price contracts are the formula for reducing costs in major procurement. But they can also be a formula for disaster, litigation, and claims, if a military service does not discipline its tendency to gold plate and to increase and change requirements during contract execution. We in the Navy have applied a new asceticism to our gold-plating lusts. Gold plating is now under firm control. An Air Characteristics Improvement Board and a

Ship's Characteristics Improvement Board have now been established to control design and equipment changes in production of aircraft and ships. An Electronics Characteristic Improvement Board will be instituted this year to apply the same principle in the areas of command, control, communications, and intelligence systems. This has proved to be a very effective obstacle to gold plating and will carry into force our "Block Upgrade" policy. Under this policy, necessary changes and modernization in design after approval by the Secretary of the Navy are made only with new annual contracts and are priced and negotiated at that time rather than piecemeal in the middle of production runs. Very substantial savings have resulted from this procedure. No contract or engineering changes may be submitted for negotiation without the approving signature of the Commandant of the Marine Corps or the Chief of Naval-Operations and the Secretary of the Navy.

Program Stability. You will note that the personnel readiness, shipbuilding, and aircraft procurement goals have not been changed in the six years since I first appeared before you. This stability is unprecedented in peacetime history, avoiding the ragged ups and mostly downs of previous five-year plans with the terrible costs and efficiency penalties that such uncertainty brings. Most of our aircraft programs have remained at stable long-term levels, and the multi-year procurement initiatives that we have been able to achieve in the C-2A aircraft and CH-53E helicopter programs are saving taxpayers more than $181M compared to their previously projected annual purchase prices.

Contract Discipline, Accountability, and Quality Assurance. We have moved from a policy of treating cost-plus contracts as normal to treating them as being only acceptable as an absolute last resort for very high risk programs. Our policy now requires more equitable risk-sharing between the government and its contractors, providing increased incentives for excellent performance and immediate contractor penalties for poor performance. We have put all of our aircraft procurement programs on firm-fixed-price type contracts and all of our ships on fixed-price incentive contracts, most with a 50/50 share line above and below the contract price. We have renegotiated contracts inherited from prior years to eliminate the more lenient terms on such programs as TOMAHAWK, TRIDENT, and the LOS ANGELES-Class submarine. We now provide our contractors with the opportunity to make more profit than heretofore allowable, by achieving performance that nets the taxpayer a substantially lower price. The corollary is that we require the contractor to bear immediately the cost of poor performance. Industry had responded at first with reluctance and now mild enthusiasm. The four most recent TRIDENT submarines were delivered to the Navy four to seven weeks early. THEODORE ROOSEVELT (CVN 71) was recently commissioned 16 months ahead of schedule and under budget, and the TRIDENT submarine, NEVADA, was recently delivered three months early.

Contractor Investment. We are moving to shift more facility and tooling start-up costs from government to industry. Defense contractors are getting fair profits as a percentage of sales, but measured as a return on assets they are grossly out of line. The reason is that until now Navy policy did not require investment in productive capital equipment and facilities for production of Navy work. Under our new policy, once production has been approved, contractors are expected to provide all production tooling and test equipment and the required facilities. Recovery of these investment costs will be through standard business practice -- depreciation and profit -- as negotiated between the Navy and the contractor.

One of the most important tenets of the Navy's acquisition policy is its emphasis on program managers being given authority and being held accountable. They are encouraged to exercise creativity in structuring acquisition strategies to meet the particular needs of their programs.

People

The people who manage our acquisition programs are critical to improving the way we do business. We must have experienced and highly skilled people performing program management and contracting functions to implement our acquisition strategy and cost-reduction initiatives.

Historically, Navy acquisition and procurement management has been plagued by rapid turnover of personnel, and inadequate experience and qualification in those assigned to those responsibilities. To correct these shortcomings, the most far reaching reform of naval officer career patterns undertaken in this century has now been fully implemented. In 1985, we established the "Material Professional" career path. We now have over 900 officers, from commander to admiral, so designated. The career path of the Material Professional integrates sea tours with acquisition tours for an officer's entire career. Once an individual is selected to be a Material Professional, the warfare specialty is relegated to a secondary role. Acquisition tours will be for a minimum four years each. Approximately one-third of our flag officer billets have been set aside for Material Professionals. Now, pursuing a career in procurement and acquisition provides a path to promotion all the way to four stars that is as attractive as a line career. Recent promotion boards have validated this commitment.

Establishment of the Material Professional's career path provides the education, experience, and most importantly, the career incentives required to make our acquisition managers capable, skilled business professionals with the warfare background necessary to properly manage weapons systems. No procurement or acquisition billet may now be filled by other than a Material Professional without a personal waiver from the Secretary of the Navy. The program has served us well and provides us an excellent example of the kind of personnel initiatives that can be used to upgrade the professionalism of our acquisition work force.

Our civilian Senior Executive Service (SES) is being reformed as well. Members of the SES are our top-level civilian managers. Many have responsibilities equal to those of chief executive officers (CEOs) and vice presidents of major industries. In order to give our SES members a better range of experience and to help them understand a wide variety of Navy programs and areas, we have mandated a five-year rotation plan. This plan is based on the private industry philosophy that, as an executive advances, he or she needs to understand--hands on--all aspects of a company's business.

Research and Development (R&D) Reform

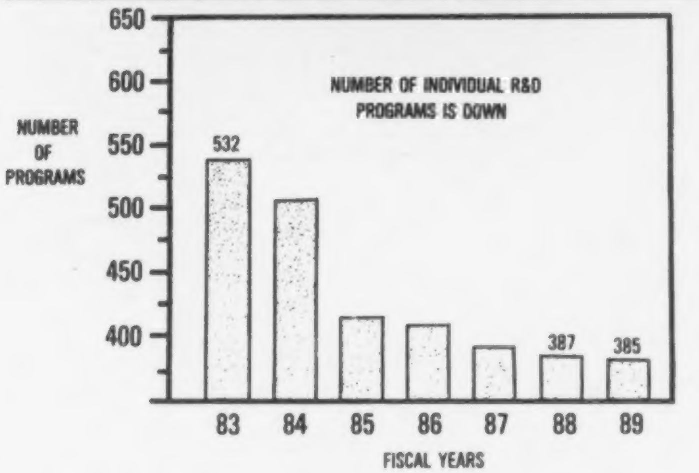
We have stopped chasing R&D rainbows. In a major effort to make dramatic increases in the productivity of our R&D dollars and in substantially shortening the time from concept to delivery, fundamental changes have been made in R&D management. In 1981 we had nearly 600 R&D programs. We have so reduced that number that it will be 387 by FY-88, and it will be 385 by FY-89. We have moved away from cost-plus contracts for full scale engineering development, and we now require the contractor to participate in prudent risk-sharing. We are no longer spreading too few dollars over too many programs where the payoffs in capability and efficiency are marginal. Furthermore, we have carefully reviewed each program to ensure we are getting maximum results for every dollar spent. In the TRIDENT II (D-5) missile program, for example, we have reduced development costs by nearly a half billion dollars since beginning full scale development in 1983 through management initiatives across the board.

To further improve the management of Navy R&D, we have, over the last year, reorganized Navy activities involved with R&D programs and budgeting. In so doing, we have again insured

DEPARTMENT OF THE NAVY

RESEARCH AND DEVELOPMENT REFORM

"STOP CHASING R&D RAINBOWS"



consistency with the organizational provisions of the Goldwater-Nichols Defense Reorganization Act of 1986. That Act directed the consolidation of sole responsibility for research and development with the office of the Service secretaries. Close examination of the staff interfaces within the Navy revealed little duplication of R&D efforts. Nevertheless, we are in the process of merging the R&D staffs into an organization characterized by separation of policy and execution, short, unambiguous lines of communications: a smaller staff of highly competent military and civilian professionals. There is even less duplication of tasks in this new scheme. The execution of this streamlined organization will be more efficient and will demonstrate a finer balance among all research and development elements in the Department of the Navy.

Affordability through High Technology

Emphasis in our research and development programs will continue to concentrate on achieving levels of high technology as a fundamental tool of American defense policy. We can never hope to match the numerical superiority of a totalitarian adversary such as the Soviet Union, but we can indeed maintain technological superiority to counter its advantage in numbers. The trendy arguments that cheaper and smaller are better are simply false. They have been invalidated time and time again in the Gulf of Sidra, in Libya, the Bekaa Valley, and in the Falkland Islands. Moreover, high technology is being applied to making systems much easier to maintain and much less costly to operate. The F/A-18 --for example-- requires less than half the maintenance man-hours per flight hour of the aircraft that it replaces. As a result, we have been able to reduce our manpower requirements by some 50 personnel per squadron.

Similarly, our TICONDEROGA-Class AEGIS cruisers are each manned by only 325 enlisted men and 23 officers, roughly a third of the complement needed for the CHICAGO-Class they replace. The AEGIS ships are also many times more capable than their predecessors.

The current generation of high tech naval aircraft such as the F/A-18, F-14A, and A-6E now has a safety record more than 10 times better than the so-called low-cost fighters of 30 years ago.

Improving Industrial Activity Operations

The Navy Department is unique in the U.S. Government in the huge size of its industrial facilities. We have six separate industrial organizations that would each rank in the Fortune 500, led by our shipyards, which alone would rank 92nd. To put our industrial house in order, we have spent the past year implementing the first phase of a series of reforms which will streamline industrial operations and place them under management as efficient as the best run private industries. We have identified, and included in our budget submission, annual potential savings of approximately $1.1B and are already seeing lower costs in our shipyards, air rework facilities, public works centers and weapons/ordnance activities. Shipyard and air rework facility civilian end-strength has been reduced by 5,500, and shipyard overtime has been reduced by 40 percent. These efficiencies are being achieved through a reorientation in attitude from one of "meet or beat the schedule without regard to cost", to one of minimizing cost. The introduction of public versus private sector competition has certainly provided greater incentives to productivity.

In our shipyards, air rework facilities and public works centers we have completed a vigorous analysis of overhead costs. The result of this effort is a 10 to 12 percent cost reduction and institutionalization of the process to preclude unnecessary growth in the future. We have taken steps to apply similar analytical techniques to our headquarters organizations, which have oversight over the industrial activities, in order to redefine their role and reduce their size commensurately. Streamlining these organizations and reorienting them to concentrate on high level management and control issues highlights our ultimate objective of vesting activity commanders with both full accountability for bottom line results, and the authority to balance the workforce and other factors affecting these results to meet workload requirements.

We are proving that the same techniques found in successful private companies, where emphasis is on efficiency and accountability, work just as well for us. For example, we are redefining the process of ship overhaul management; we are improving procedures for forecasting, providing, and managing needed materials and repair parts; and we are refocusing procurement of materials and services in support of industrial operations. We have also tried hard to eliminate self-imposed and unnecessary rules and regulations which complicate the management process without adding any offsetting benefits.

ACTION '88

We recently launched a unified improvement initiative - ACTION '88 (Attack Costs through Improvements in our Navy/Marine Corps) to further promote efficiencies and to control costs throughout the Department of the Navy. This initiative is a revitalization of our current improvement programs brought about to emphasize and coordinate their inter-relationships. These programs are designed to reduce costs while maintaining or improving quality in all aspects of acquisition, maintenance and support. Our goal is to liberate our Navy personnel from their bureaucratic over-regulation/over-management and allow their common sense to prevail. While there already is significant progress in these areas, we continue to strive for even greater success.

- In 1985 we established the Specification Control Advocate General at the senior executive service level, the first such dedicated position within the Defense Department under whose leadership ACTION '88 is proceeding. To carry out ACTION '88, there is an advocacy network in place at all major commands.

- ACTION '88 is a combination of programs - principally acquisition streamlining, value engineering, off-the-shelf procurement, productivity improvement and specifications and standards. These programs represent significant policies to improve government and industry performance.

-- Acquisition streamlining relies heavily on teamwork between government acquisition personnel and contractors. The expertise of both is required to attain maximum benefit. We have included industry early in the development and design process by various means, including issuing draft solicitations for industry review and comments. Industry involvement in helping establish initial requirements, and subsequent involvement in recommending requirements for later phases promotes open competition, and results in significant cost savings by introducing producibility contributions early in the process. Our contracts include contractor incentives for value engineering to reduce cost to the taxpayer. Acquisition streamlining also promotes greater use of non-development or off-the-shelf commercial products. We have successfully applied this principle to the TRIDENT Missile Program, Remotely-Piloted Vehicle Program, many shipbuilding programs and a wide range of product lines. During its first year, the Navy acquisition streamlining initiative achieved savings of over $1 billion in cost avoidance. We anticipate equivalent or greater savings from our current and future efforts.

-- Our specifications and standards program ensures that only value-added technologically-current specification documents are used in our contracts. All of our systems commands have ongoing efforts to upgrade their specifications efforts. We have and continue to take action to ensure that our program managers and contractors are freed from specifications and standards that do not contribute to the quality of the system being procured. To encourage this, we instituted automatic cancellation of overage and obsolete specifications. We are changing the institutional bias to use unnecessarily detailed military specifications and instead have launched an aggressive campaign in favor of performance oriented function specifications and commercial standards where appropriate.

-- Part of our effort to change institutional biases includes stepped-up training of acquisition personnel. We now offer training in value engineering and acquisition streamlining and are taking steps to institutionalize cost-effective principles within our acquisition workforce. Our value engineering program realized savings in excess of $556M dollars during FY 1986. This is a 37 percent increase over FY 1985 savings. The return on investment is greater than two to one. Our value engineering training program is extensive. During FY 1986 over 2,700 students attended our value engineering classes. We expect our successes to continue and the results should be even more impressive.

The President, by executive order, has established a goal to increase productivity by 20 percent by 1992. Our goal is to surpass the challenge set forth by the President. We have taken key steps to increase the productivity of our workforce, and have eliminated needless layers of bureaucracy. We have taken steps to insure that our line managers have the necessary authority commensurate with their responsibilities. We have taken steps to eliminate obstacles to superior performance. Our Model Installations Program has proven to be another success and encourages innovative approaches to problem solving on the part of our installation commanders. The Office of Personnel Management has permitted the Navy to manage its payroll as any business entity would. We believe great benefits can be achieved by managing to payroll instead of personnel ceilings. Our productivity program ranges from capital investment efforts enabling increased output, to incentives for outstanding personnel performance. All are designed to bring about long term productivity improvements and to allow the Department of the Navy to make more efficient use of scarce defense resources.

De-organizing and De-centralizing the Bureaucracy

The horrendous nature of the current over-layered system of defense management is well known. We need no new bureaucratic entities; rather, we need a large reduction in the number and size of existing ones.

Accordingly, we disestablished one of our own chief offenders, the Naval Material Command (NAVMAT). This has decentralized acquisition management in the Navy and streamlined the decision-making process. NAVMAT headquarters authority has been distributed among five individual systems commands formerly under its control. Four hundred and fifty positions have been eliminated, improving accountability in program management. The systems commands themselves are being realigned. The Electronics Systems Command has been restructured to include space systems, ships systems and aircraft systems, and other service and allied systems in a new Space and Naval Warfare Systems Command.

We continue aggressive action to reduce staffing and improve efficiencies. A recent example is the reduction of unneeded manning at headquarters staffs installations on the East Coast. 600 billets were eliminated at one installation equating to a 75 percent reduction.

In February 1986 we assigned administrative responsibility of all Navy laboratories and research and development centers to the new Space and Naval Warfare Systems Command to provide for more efficient administration and system integration.

We also reorganized the Naval Education and Training Command Headquarters, cutting its manning approximately in half. Functions were passed to subordinate commands to eliminate redundancies.

Cutting Bureaucratic Make-work

In related moves, we have drastically reduced the non mission related administrative workload imposed on the fleet. A recent Blue Ribbon Panel study determined that a bloat of bureaucratic burdens has been imposed on our operational units by headquarters staffs and Congressional reporting requirements. We were appalled to find that in operational squadrons, aviators were forced to spend an average of two-thirds of their time on non mission related paperwork. As a result of this study, we have reduced administrative-related reports and duties imposed by Department of the Navy directives by over 50 percent.

Management Initiative Results

These management initiatives have produced dramatic results. A few highlights are listed below:

The disputes, litigation, claims, cost overruns, and schedule delays that characterized naval shipbuilding in the 1970s have been eliminated. Over the last five years (CY 1982-86), 114 ships have been delivered to the Navy of which 40 were ahead of schedule, 50 on schedule, and only 24 behind schedule. The net of all five years_is 33 months ahead of schedule for all ships. After years of bitterness and massive cost overruns and claims in our submarine programs, all submarines have been delivered on or under budget. For the sixth straight year there has not been a single new construction contract shipbuilding claim outstanding against the Navy.

Aircraft Carrier Savings. Our acquisition strategy for nuclear aircraft carriers has been very effective in reducing the cost of achieving airpower at sea and in accelerating the growth to a fifteen carrier battle group force level. Originally, a split buy of two new aircraft carriers in separate annual procurements for ABRAHAM LINCOLN (CVN 72) and GEORGE WASHINGTON (CVN 73) was estimated to cost $8024M. Our multiple ship award strategy in FY 1983 brought these costs down to $7270M, a savings of $754M. Furthermore, since contract award, sound management practices and the success of the Administration's national economic policies have achieved further cost savings of another $1274M, bringing the estimated end cost to $5996M for the two CVNs. These savings permitted us to return $450M from the carrier account alone for reprogramming to the MX program.

In addition to saving over $2.0B by our CVN 72/73 acquisition strategy, we will also deliver these ships earlier than a traditional split annual procurement approach. We estimate that CVN 72 and CVN 73 will each deliver 22 months earlier than with a traditional approach. THEODORE ROOSEVELT (CVN 71) was recently commissioned more than 16 months earlier than the original schedule through incentives we have established in the CVN 71 construction contract. Thus, a total of 5 additional nuclear aircraft carrier ship years will be achieved through our acquisition strategy.

AEGIS cruisers. Bath Iron Works was selected as a second source to compete with Litton for procurement of AEGIS cruisers. Contracts were signed in December 1983 for the first three cruisers to be competitively awarded: two to Litton and one to Bath. In November 1984, the second year of competition resulted in Bath winning two FY-85 ships and Litton one. In December 1985, the third year of competition resulted again in Bath winning two FY-86 ships and Litton one. Contract savings from this new competitive approach in shipbuilding have been enormous. In the FY-82 five-year defense plan submitted in March 1981, nine cruisers in FY-84, 85, and 86 (of the twelve cruisers then proposed) were estimated to each cost more than an average of $1.2 billion. After second sourcing in the FY-87 budget, the estimated cost is now less than an average of $890M for each of these nine AGEIS cruisers. This second source initiative has, therefore, contributed to about $3 billion in cost reductions for those nine ships.

Battleships. NEW JERSEY was recommissioned in December 1982 ahead of schedule and under budget. IOWA was delivered well ahead of schedule and under budget in April 1984, while MISSOURI was in large part funded from contract savings and was reactivated ahead of schedule in the Long Beach Naval Shipyard and recommissioned in San Francisco last summer. WISCONSIN (BB 64) is under reactivation and modernization at Ingalls Shipyard with ship delivery in August 1988.

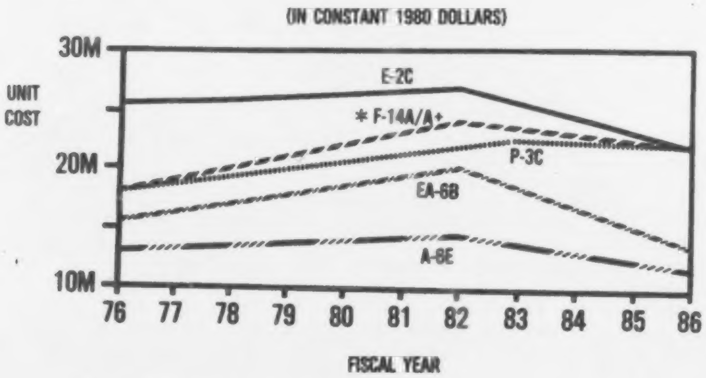
Amphibious Ships. Our competitive acquisition strategy for the LHD program has achieved significant costs savings with favorable effects on force level attainment and overall savings. The FY 1986 President's Budget requested $3496.5M for the FY-86, 87, and 89 LHD ships. Our acquisition approach introduced shipbuilder competition into this previously sole source program and called for advance procurement up-front for the FY-88 and 89 ships to achieve economies of scale in ship equipment and material procurements. We also maintained rigid specification control to contain costs. This acquisition approach has resulted in significant cost savings with the recent contract award of the LHD 2 with options for the LHD 3 and LHD 4 in FY-88 and 89. The estimated end costs for these three ships is now $2506.3M for a total savings of almost one billion dollars over the five-year shipbuilding plan.

The near term savings in FY-86 and FY-87 associated with the LHD 2 construction contract and advanced procurement for the LHD 3 and LHD 4 were $338M in FY-86 and $197M in FY-87 for a total of $535M. The timely award allowed us to apply these savings immediately during the FY-87 appropriations deliberations in Congress.

Build/Convert and Charter Programs. All Thirteen Maritime Prepositioning Ships (MPS) and five T-5 tankers have been delivered. These ships provide a dramatic new capability to preposition the equipment and supplies to support three Marine Amphibious Brigades in areas of potential crisis around the world. The first six of the MPS ships were completed two months ahead of original schedule and under budget. The first of two U.S. Navy hospital ships converted from tankers, USNS MERCY (T-AH 19), was delivered in December. The primary mission of the 90,000-ton MERCY will be to provide full medical support to the Defense Department's Rapid Deployment Task Force. Her secondary role will be to provide full hospital service to other government agencies involved in disaster relief. MERCY will be part of Military Sealift Command's (MSC) Strategic Sealift Force. MERCY's sister ship, USNS COMFORT (T-AH 20), is due to be delivered in San Diego in July 1987. Both MERCY and COMFORT will be manned and operated by MSC civilian mariners and will also have a naval medical detachment on board. MERCY will deploy to the Philippines in early 1987 and call on various Philippine ports to provide humanitarian assistance.

Aircraft Unit Costs. Navy management initiatives continue to be extremely effective in controlling the price of combat aircraft. In 1981 the Navy implemented vigorous cost management programs which emphasized competition and required improved production efficiency by major contractors. These efforts helped reverse the rising trend in Navy aircraft prices experienced between 1950 and 1981. Since 1982 the overall downward trend in the price of Navy combat aircraft has resulted in real savings. In constant year 1980 dollars, the average recurring unit price of Fiscal Year 1986 combat aircraft, as a group, dropped 33 percent from the average price paid in Fiscal Year 1982. In Fiscal Year 1986 alone this has resulted in savings relative to the President's budget of approximately 11.3 percent.

U.S. NAVY
RECURRING UNIT FLYAWAY COST TRENDS 1976-1986



* INCLUDES IMPACT OF FIRST F-14 A+ BUY IN FY 86

Consolidated Automatic Support System (CASS). A prime example of the benefits achieved through competition is the Navy's Consolidated Automated Support System (CASS). CASS, designed to be a total program directed towards electronic testing, will accommodate new generation technology, overcome obsolescence problems of current automatic test equipment, be reconfigurable to fit changing operational workloads/scenarios, and be totally self-supportable. We estimated that during the next 20 years, CASS would save the Navy over 50 percent in development costs, substantially reduce automatic test equipment unit costs, and save several billion dollars in life cycle costs. As a result of the acquisition strategy, which focused on industry teaming, maintaining competition through all phases of the acquisition process, and a two-phased fixed-price full scale engineering development (FSED) effort, the cost savings to the Navy are even greater than earlier anticipated. The FSED effort will cost 40 percent less than earlier estimated and the first three years of production show an additional 40 percent cost savings.

Small and Disadvantaged Business Utilization. Navy small business program performance, again, was outstanding during FY 1986. Contract awards to small businesses totaled $7.42B, or 16.6 percent of our total awards. This small business share, which includes awards to women-owned and minority-owned concerns, is the highest ever achieved by the Navy. From FY 1982 to FY 1986, contract awards to small businesses increased by 63 percent in dollar value, representing a continuing commitment to bring the benefits of competition and the small business industrial base to Navy acquisition programs.

Navy Acquisition Reporting System. This new system has been a dramatic success. It involves a new, simple, and straight-forward acquisition reporting system for the top 60 programs. It requires quarterly reports on any changes of estimated cost for R&D or production or changes in schedule for each of those 60 programs and provides early warning of performance difficulties. While this system is primarily meant for senior Navy management, its effectiveness makes it a prime candidate for eventual replacement of the current Selective Acquisition Reporting System.

Assignment Policy for Program Managers and Industrial Facilities Commands. The minimum tour length for officers serving in these important acquisition billets has been lengthened to four years. Arrival and departure from these assignments now is planned to coincide with major Department of the Navy Systems Acquisition Review Council (DNSARC) milestones and/or program starts or completions.

BOSS. Fiscal year 1986 was the third successive year of unqualified success for Project BOSS (Buy Our Spares Smart), our initiative to correct problems in the procurement of spare parts. We set challenging goals and met them. Hard work and dedication at all levels of the Navy, from fleet sailor to industrial artisan and from procurement specialist to program manager, continue to yield high returns:

- Spare parts competition at our inventory control points has tripled from the 1983 rate of 13.5 percent to 41 percent in 1986.

- We review over 100,000 parts annually to identify those that we can buy more economically through the use of competition or direct procurement from the actual manufacturer.

- Military and civilian personnel are increasing their use of our Pricing Hotline to tell buyers when a part appears overpriced. Our Price Fighter team helps the buyers determine how much such parts should cost. When we find parts with excessive prices, we demand and get a refund.

- The combined result of these and hundreds of individual initiatives is cost avoidances totaling over $900M since 1983 -- $381M in FY 1986 alone. This is a nearly five to one return on our $188M investment over the three years.

The most fundamental change caused by Project BOSS is one of attitude. Competition and buying parts directly from the manufacturer are replacing the traditional reliance on sole source weapon system prime contractors for spares. Buyers and spare parts consumers alike challenge prices which fail the common sense test. Industry believes us when we say we will not stand for unreasonable prices. Our message on spares pricing is clear and well understood. It is an integral part of our drive to apply common sense business practices to all aspects of Navy and Marine Corps acquisition management.

Depot Level Repairable (DLR) Components. In a major innovation in the management of maintenance funding, we have instituted a decentralization of the management of DLR components to the ship and the air station level. From 1981 to 1984, we tested financing the procurement and repair of non-aviation DLRs through the Navy Stoc Fund. This means that fleet units must budget and pay for repairable components instead of receiving them "free" from a centrally financed fund. Stock Fund financing of non-aviation repairables improved material availability by 46 percent, reduced casualty reponse time by 27 percent, and increased the number of components being returned to depot repair by 36 percent. We then began testing financing the procurement and repair of aviation DLRs through the Stock Fund in April 1985. Although still early, we have already recorded an 8 percent improvement in aviation repairable material availability, a 3 percent increase in components being returned for depot repair, and a 27 percent reduction in back ordered requirements. We are also seeing more components repaired at the lowest authorized (and therefore least costly) level, saving the taxpayers' money and returning the assets to the fleet more quickly. The end result of these initiatives is the establishment of a buyer/seller relationship between the Stock Fund and its customers, who in turn are being held accountable for their expenditures. This results in a much more frugal approach to ordering and repairing these critical and valuable parts.

Our management and acquisition reforms are not intended to affect the system for a few brief years only and then be buried under the weight of bureaucratic inertia and free-spending reaction. They are being institutionalized into the very fabric of Navy life, by such measures as our acquisition policy instruction which codifies our acquisition reforms and ensures their institutionalization at all levels of the Department of the Navy.

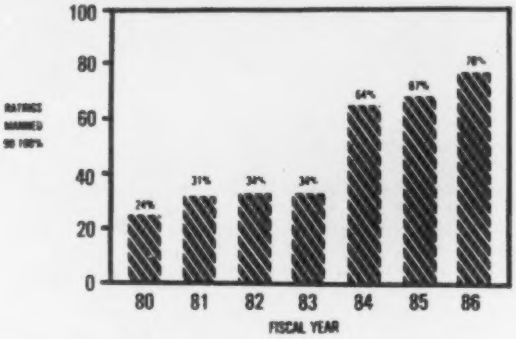
VII. What has Been Accomplished in Six Years with 4.1 percent Annual Budget Growth?

Personnel

The past six years have seen the most dramatic change in the manning of the Navy and Marine Corps in the 211 years of our history. From the worst retention and recruiting in postwar history in 1979 and 1980, we have achieved the highest figures ever recorded. We are meeting 100 percent of our accession goals, and have achieved 97 percent non-prior-service high school diploma graduates in the Marine Corps and 85 percent in the Navy. In virtually every category we have increased retention to near-record highs: in skilled enlisted ratings, in pilots and naval flight officers, in nuclear-trained and surface warfare officers. From a situation six years ago when some of our ships could not deploy on schedule because the fleet was manned at only 91 percent, we are now at 100 percent ship manning for a Navy that has grown by more than 75 ships. Sustaining 100 percent manning afloat has not come easily. The increase in new ships has created a heavy demand for petty officers coming on top of a shortage of 22,000 petty officers inherited in 1981. We have not only

increased our petty officer inventory by over 64,000 but have also improved our rating distribution effectiveness by over 200 percent. As you can see below, in 1980 only 24 percent of our ratings had the proper balance of people. Today 76 percent of our ratings are properly balanced.

DEPARTMENT OF THE NAVY RATING MANAGEMENT EFFICIENCIES



In order to maintain our required manning levels, and to keep the fleet ready to respond when called on will require a solid and intensive commitment to our recruiting efforts. A well developed media and advertising campaign are essential to success. We will need your continued support in this area.

Applications to the U.S. Naval Academy at Annapolis, Maryland, are at record levels, reflecting the new pride in American youth in serving our country. 14,282 applications were received for the Class of 1990 -- the highest number of applications ever. Eighty-two percent of the men and women enrolled in the Class of '90 were in the top one-fifth of their high school class; 55 percent were members of the National Honor Society, and 12 percent were either high school senior class president or vice president.

Naval Reserve

The Naval Reserve contains several components which only exist in the Reserve: 100 percent of the Navy's U. S. based logistics support squadrons; 100 percent of light-attack helicopter squadrons; 100 percent of our combat helicopter search and rescue capability; 100 percent of naval mobile inshore/ undersea warfare units--the "Brown-Water Navy"--structured for combat on inland waterways. Upon mobilization, the Naval Reserve provide 99 percent of naval control of shipping organization manning for merchant ship mobilization and convoy formation for overseas operations; 86 percent of our ocean going minesweepers; 86 percent of the cargo-handling battalions vital to port management and loading operations in combat theaters; 85 percent of Military Sealift Command military personnel; 68 percent of Naval Mobile Construction Battalions, the famed Seabees; 66 percent of Special Boat Forces; 35 percent of maritime anti-submarine warfare patrol aircraft squadrons; 34 percent of naval intelligence personnel; 21 percent of ASW helicopter squadrons needed for fleet and convoy anti-submarine defense efforts; and 14 percent of our tactical sea-based aviation capabilities.

Reorganization of the Naval Reserve to a "horizontal integration" with the active force begun in 1982, has had the effect of shifting a substantial portion of our force structure manning to the Ready Reserve. Increased reliance on the Ready Reserve has enabled us greatly to reduce our original estimates of required active end-strength growth.

- In FY 1988 and 1989, 48 ships will be manned by Selected Reserves, in addition to the augmentation of essentially all naval units by Selected Reserves upon mobilization.
- The 15th active carrier air wing has been deleted from the program and the 15th carrier will carry a reserve air wing.
- Seventeen modern OLIVER HAZARD PERRY and KNOX-class frigates have been transferred to the Naval Reserve Force, with a total program of 26 frigates planned by 1990.
- By the mid-1990s, 14 MCM and 10 MHC mine warfare ships will join the Naval Reserve.
- The first reserve squadron has now completed transition to the F/A-18 with a second squadron transitioning this year. Two squadrons have transitioned to the F-14A, with the remaining two scheduled for transition this year. The first Reserve A-6E squadron will stand up in FY-88 and the second one will follow in FY-90.
- Modern A-7E, E-2C, and SH-2F aircraft have or are being transferred or acquired for Reserve units this year, with other fleet aircraft to follow during the current five-year plan.
- Squadron augmentation flying units have been established and are operating successfully with each active duty air wing, providing current-trained aviators and maintenance personnel for immediate augmentation to active duty squadrons.

The Marine Corps relies heavily on a fully trained and capable Reserve component to complement its active force. Upon mobilization, this Reserve component provides up to 33 percent of the Marine Corps' wartime manpower requirements. The Reserves provide 40 percent of Marine tanks; 33 percent of the heavy artillery; 30 percent of the light attack aircraft; and 33 percent of the anti-aircraft missile capability.

The Marine Corps Reserve has made great progress over the past six years. Enhancements in military capability include equipping the Marine artillery battalions with the M198 howitzer in FY's 88/89, increasing the deliveries of the TOW missile systems in FY-88, and the activation of a light Armored Vehicle (LAV) battalion in FY's 87/89. Marine Reserve aviation assets have also been the subject of an intensive modernization effort. Increased combat capability has been gained by the activation of an additional AH-1J (COBRA) Attack Helicopter Squadron and a new KC-130 Refueler Squadron in FY-88. Additional enhancements include the employment of the F-21A KFIR aircraft by a Reserve squadron to provide adversary training for Marine tactical air assests. In 1989, the Marine Reserve will begin transitioning to an all F/A-18 Reserve fighter/attack force, providing advanced aircraft and commonality and interoperability with the active wings.

Aviation Safety

Naval aviation has just completed its safest year since our record setting performance in calendar year 1984. There are three areas of achievement in 1986 which were particularly noteworthy.

- Naval aviation safety in 1986 was the best it has ever been. Initial data indicates that the overall aviation mishap rate per 100,000 flight hours matched our previous best rate set in calendar year 1984.

- The Marine Corps recorded the safest year in their aviation history with 19 mishaps and a rate of 4.43 accidents per 100,000 flight hours.

- Fatalities in naval aviation were at an all-time low of 60. While even one is too high, this is 19 percent lower than our previous best set in calendar year 1982.

Families

With people having the highest priority in Navy and Marine planning, family quality of life has been steadily improved. We now have 82 Family Service Centers, 26 Spouse Employment Assistance Program Centers (Navy), and 12 Employment Resource Centers (Marine Corps). We expect to continue to expand our family service programs and to develop the tools to help ameliorate the family hardships encountered in frequent relocations. We have improved off-duty recreational opportunities which support physical fitness and healthy lifestyles, and are improving our efforts to provide adequate and affordable child care. The emphasis we place on caring for our military personnel and their families greatly enhances our ability to retain a quality force ready to respond to the call to arms quickly and with unquestioned dedication. Navy's highest priority will continue to be its personnel and their families.

Readiness

The fleet is more ready to go in harm's way than at any time in peacetime history. In the past six years, overall combat readiness for surface ships has improved by 111 percent, for nuclear attack submarines by 69 percent and aviation squadrons by over 200 percent. The importance of sustaining this level of readiness is demonstrated by our nation's reliance on the Navy to respond with flawless performance to contingencies such as the Achille Lauro episode and the strike on facilities that supported terrorism in Libya.

The net increase in spare parts and ammunition has been far greater than the actual increase in funding applied to it. The reason has been the dramatic reforms in the way we have managed these funds. Despite the misinformation provided by self-appointed experts on defense procurement, the Navy initiated a major reform of its spare parts buying under the direction of the Secretary of Defense. Nearly all of the horror stories appearing in the press were the result of a vigorous pursuit of abuse by Navy personnel at all levels. We have been able, for instance, to raise competition in our purchase of aviation spares from a deplorable low of 6.9 percent in 1982 to the current level of 40 percent. As a result, the increase of end items to the fleet is substantially more than the increase of funding would suggest. The funding applied to spare parts procurement in this year's budget reflects application of these economies.

Sea-based Nuclear Deterrent

The modernization of our sea-based leg of the strategic deterrent is proceeding well. We have added eight OHIO-Class TRIDENT SSBNs to the fleet since 1981, with six others authorized. The latest addition to the fleet was USS NEVADA (SSBN 733) commissioned in August 1986. During sea trials, TRIDENT submarines have met or exceeded all of their design specifications. The next TRIDENT, USS TENNESSEE (SSBN 734) will be the first ship capable of carrying the TRIDENT II (D-5) missile. Launched in December 1986, it will be commissioned in January 1989. With these developments, the strategic submarine force builds on continued success and remains the most cost effective and survivable leg of the strategic triad.

The first eight OHIO-Class TRIDENT SSBNs are outfitted with the TRIDENT I (C-4) missile, joining 12 POSEIDON SSBNs currently equipped with TRIDENT I. Over the past six years the development of the TRIDENT II (D-5) has progressed well and an accelerated deployment schedule was programmed; missile development is on track for an initial operational capability (IOC) of 1989. The initial flight test in January 1987 at Cape Canaveral was highly successful.In addition, we have greatly strengthened command and control of our strategic forces, including construction of the Extremely Low Frequency (ELF) communications system, and have begun to procure a follow-on TACAMO command and control aircraft. Three years ago we began deploying TOMAHAWK sea-launched cruise missiles equipped with nuclear warheads for theater nuclear deterrence. They are now operationally capable on attack submarines, cruisers, destroyers, and reactivated battleships. This highly reliable, accurate, low cost weapons system is a tremendous force multiplier that adds a new and very stabilizing dimension to our deterrent posture, and matches a capability inherent in the Soviet fleet since the early 1960s.

Shipbuilding

Six years ago the President set a goal of doubling the naval shipbuilding program. We have maintained that ambitious goal despite continuing cuts from the original budget estimates. We have brought dramatic new efficiency, discipline, and cost savings to the management of Navy shipbuilding.

- From the 479 battle force ships in the fleet when President Reagan took office, the fleet has grown to 555 ships today and 564 by the end of FY-87, reaching 600 by the end of 1989.

- In 1986, we took delivery of 19 new ships, including an aircraft carrier delivered over a year early, two AEGIS cruisers, a battleship, a TRIDENT submarine, two attack submarines, two frigates, an amphibious landing ship, a fleet oiler, two ocean surveillance ships, two salvage ships, a hospital ship, a fast logistics sealift cargo ship, a crane ship, and an aviation repair ship.

- The third Maritime Prepositioning Ship (MPS) Squadron became operational in the Pacific Ocean this year, completing deployment of these vital stores ships and bringing to 13 the number of Maritime Prepositioning Ships constructed and deployed in the last four years. The Maritime Prepositioning Ships program progressed from concept to fruition in just seven years and provides a force deployment capacity equal to approximately 4500 C-141 sorties that significantly enhances our global crisis response capability.

- From 1984 to 1986 we procured and converted eight commercial SL-7 cargo ships to fast sealift ships. These eight highly versatile ships are together capable of transporting an entire heavy mechanized Army division to Europe at speeds approaching 30 knots.

- Our FY-88/89 five year plan calls for a total of 102 new ships and reflects the proper balance of ship types and capabilities needed to sustain and modernize the 600-ship Navy.

There are currently 80 naval ships now under construction, conversion or reactivation, at 17 different yards throughout the United States. A substantial benefit to the economy and to deficit reduction of our shipbuilding, conversion, and overhaul programs has been the immediate creation of very substantial numbers of jobs in a declining shipbuilding and repair industry. The Navy shipbuilding and repair programs now account for over 85 percent of all employment in that industry in the national shipyard mobilization base. On the larger impact of Navy shipbuilding, it has been estimated that every billion dollars in the Navy shipbuilding program creates 26,000 direct jobs and 12,000 secondary jobs.

Aircraft

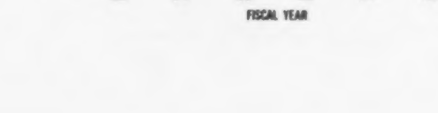
In each of the eight years preceding the Reagan rearmament program, the Department of the Navy was not able to procure enough aircraft to replace those lost through peacetime attrition. In each of the past six years, however, naval aircraft procurement has exceeded by nearly one and one-half times - the average number of aircraft procured during each of the preceding four, and procurement of aircraft spares has more than tripled. These high rates of procurement have been maintained because of a historic reversal of cost trends in naval aircraft programs. For the fifth straight year, all naval aircraft procurement programs are on a firm-fixed-price contract basis, precluding the possibility of production cost overruns, and the annual prices of our new tactical aircraft have actually been coming down. Competitive pressures have been maintained through imaginative acquisition strategies and strengthened contractual commitments from program start.

In 1987 we continue to increase the force levels and deploy our newest weapon systems, the F/A-18 HORNET and the LAMPS MK III SH-60B helicopter. The HORNET demonstrated superb readiness and combat capabilities during our highly successful 1986 Libyan operations. Current force levels include ten U.S. Navy and six U.S. Marine Corps fleet squadrons. The LAMPS MK III continues to meet or exceed readiness and reliability goals as the force level has expanded to four fleet squadrons. This year we have continued the successful development of the following major programs: T-45 GOSHAWK, V-22 OSPREY, F-14D TOMCAT, and the A-6F INTRUDER. All will be procured under fixed price contracts.

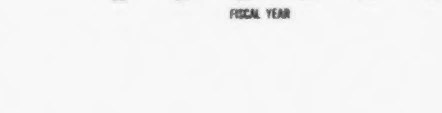
Weapons and Ammunition

In the decade preceding the Reagan Administration, the Marine Corps was unable to procure sufficient ammunition to replace the stocks expended in normal peacetime training. As a result, sustainability and war reserves disappeared. During that same period, the Navy was held to such low levels of procurement of ammunition, missiles, and torpedoes that five years ago we did not have sufficient stocks to load out the reduced fleet of 479 ships--even once--with full magazines. We had less than a week's supply of the most important air defense munitions. Such enormous shortages created over a decade of unilateral disarmament in the 1970s are not going to disappear overnight. But six years of sustained growth in our ammunition accounts has now begun to refill our munitions stockpiles.

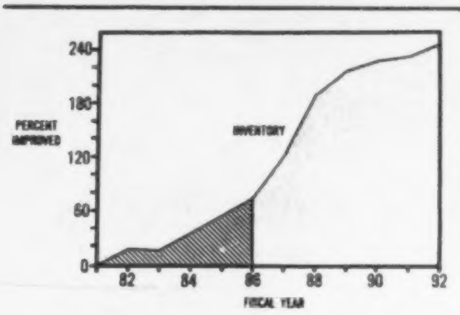
TORPEDOES

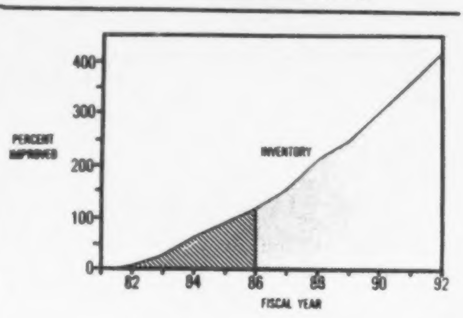


SURFACE-TO-AIR MISSILES



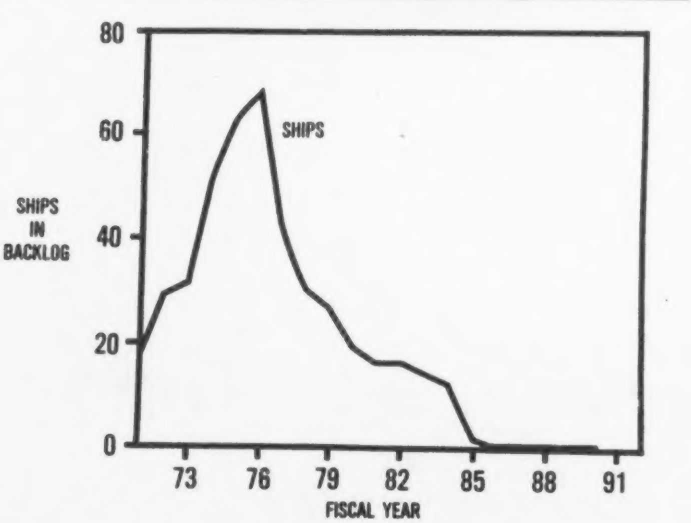
Despite the fact that there is a two to three year lag between funding and delivery, our overall ordnance stocks have grown between 20 and 90 percent larger than they were in 1981, and are increasing literally every day as deliveries reach the fleet. For example, the number of in-bin cruise missiles has more than doubled.


AIR-TO-AIR MISSILES


CRUISE MISSILES

Overhauls

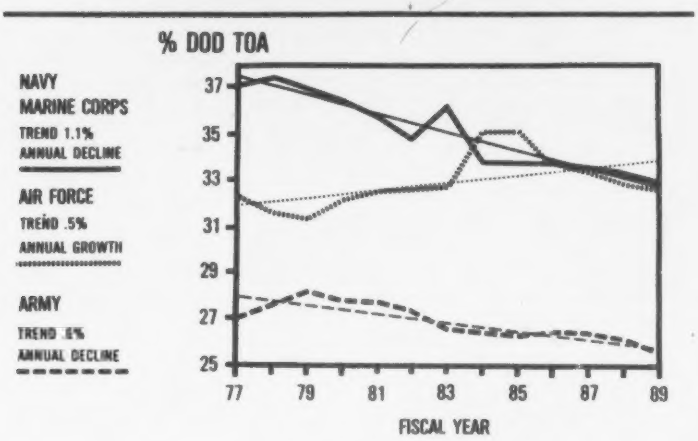
The application of competitive bidding procedures between the public and private sectors for all surface ship and submarine overhauls has resulted in substantial dollar savings, improved quality, and timely completion. At the same time we have been able to relieve the inherited backlog of ships awaiting overhaul to zero today while at the same time increasing the fleet by 76 ships.


OVERHAUL BACKLOG

PART 2

DEPARTMENT OF THE NAVY BUDGET FOR FISCAL YEARS 1988/1989

DEFENSE BUDGET SHARE BY SERVICE



TOA=TOTAL OBLIGATIONAL AUTHORITY

The Source of the Navy/Marine Corps Budget

Commentators with little knowledge of defense policy have criticized the service budget requests as exercises in simply asking for more programs that have a momentum of their own. Nothing could be further from the truth. The preparation of the 1988/1989 budget began with the foundation of national strategy and the maritime objectives assigned to the Navy and Marine Corps. From maritime strategy came the force structure planning requirement. Throughout the year, the strategy and the force levels have been refined and tested in multi-national exercises, simulations, and wargaming. The most important input to the preparation of this budget is the assessments of the operational and theater commanders in their net assessments and recommendations for funding priorities. The lessons learned from real-world operations and conflicts such as the Achille Lauro incident and the Libyan strike operations are applied and often further modify the budget planning. From the start of the FY 1988/1989 programming process in September 1985, the application of common sense in placing priority on the most urgent CINC requirements has been applied throughout. Then after exhaustive scrubbing and debate within the Department of Defense with the CINCs and with other agencies of the government, the Department of the Navy budget request has been completed.

I. Readiness

OPTEMPO

Family separation stemming from high levels of operational deployment (OPTEMPO), remains the number one reason why young officers and enlisted men and women choose to leave the Navy.

We have made significant progress and improvement in this area. Deployment schedules were ordered to be arranged to eliminate excessive at-sea periods for ships and aircraft squadrons and ensure all units deployed will spend a maximum of six months away from homeport. Naval personnel on sea duty are assured they will be in home port at least 50 percent of the time between overhaul cycles with a deployment turnaround ratio of 2:1 or better, which really means if you're deployed for six months, you're home for 12. Underscoring our progress in this area was the return of USS AMERICA (CV 66) and ten other Atlantic Fleet ships in September following a most successful six-month deployment, in which they played key roles in operations off the coast of Libya. Her return on time demonstrated to the sailors and their families in a visible way that we are determined to reduce fleet deployments even while supporting national security requirements.

Additional ways in which we plan to decrease the number of ships and people on extended deployments are by selectively alternating battleship battle groups with carrier battle groups decreasing the size of battle groups and selectively gapping naval presence in areas that our foreign policy can support.

Personnel Readiness

The FY 1988/1989 budget continues to place personnel readiness at the top of spending priorities as in the previous six budgets. Nothing is more important than our people. The tremendous turn-around in morale and personnel quality and performance has proved to the skeptics that, for the Navy and Marine Corps, an All-Volunteer Force produces a better and readier force for the long term than a peacetime draft. This success, however, depends on the maintenance of adequate compensation and adequate quality of life. We must maintain budgetary support for those priorities. Even with the 3 percent pay raise which occurred on 1 January 1987, our uniformed personnel are still behind civilian wage growth. We would need a minimum 4.1 percent raise in FY 1988 just to keep from increasing this disparity.

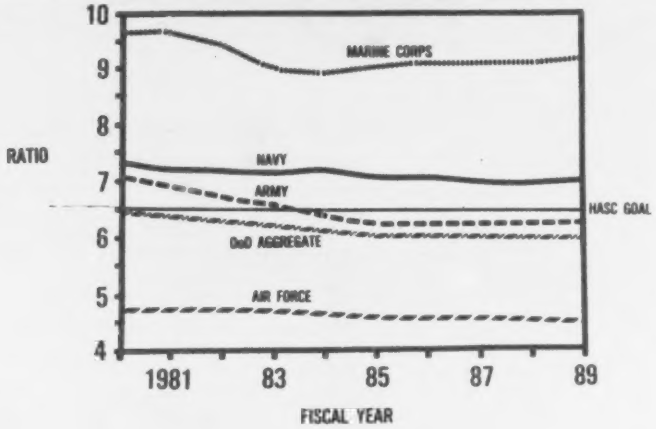
Similarly, the current five-year projection for military housing is a bare minimum to support retention and operational readiness. Any cut in housing severely affects the junior enlisted personnel who are least able to survive in high cost areas. Within the limits imposed by budgetary restraint and operating mission requirements, we are working to improve military housing for our single and married members.

Our budget request contains the following priority programs in personnel readiness:

Increases in End-Strength. We will continue to add about 20 ships per year to the fleet from now until 1989. We must have increased end-strength to man these ships and our larger numbers of aircraft and support units. Because of Congressionally imposed reductions in the last four years, our end-strength increase has not matched the requirements of the ships that have been added. The shortfall has been imposed on the shore establishment and that expediency can no longer absorb further cuts. Our active force end-strength must be raised in FY 1988 by 6,200 and in FY 1989 by 9,600 for the Navy and 500 for the Marine Corps from FY-88/89. Reserve force structure also needs expansion. We are requesting an increase of 7,914 in Naval Reserve end-strength in FY-88 and 4,300 in FY-89, and 1,700 for the Marine Corps Reserve over two years.

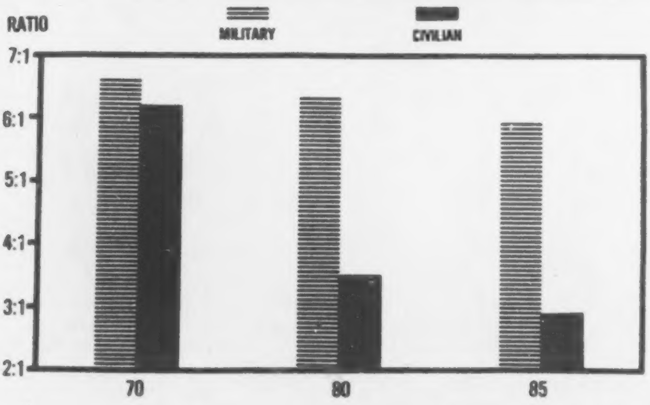
Officer End-Strength. The time has come to correct a grotesque imbalance that has developed in defense manpower. Over the past six years we have periodically expressed concern that the Navy and Marines are seriously under represented in OSD and JCS. These continuing disparities have perpetuated a serious and pronounced anti-maritime bias in the bureaucracy. Given the large shift of power and importance to the joint and OSD system under recent centralizing legislation, the Navy and Marines must have relief in officer strength to participate on an equitable basis. As it is, many of our officers must spend 14 out of their first 20 years at sea. The cuts which were arbitrarily imposed by Congress are seriously affecting our fleet manning and our efforts to comply with Congressional desires for more joint representation.

ENLISTED TO OFFICER END STRENGTH RATIO



The Navy and Marine Corps have consistently maintained the best enlisted to officer ratios within DOD. We have been able to do this by using civilian substitution wherever possible to both prevent "Brass Creep" and to reduce costs. Moreover, the increased use of technology in many areas has allowed us to restrain enlisted manning requirements, which gives the false impression of officer growth in relation to enlisted strength. Automated engineering systems, unmanned gun mounts, tactical data systems, and computer systems are examples of how we are doing more with less people. Officer manning has also been constantly reviewed for efficiencies, but the increasing demands of technology have required us to sustain the education level that our officer corps provides. In the main our officers are college graduates while our enlisted are not, and the technology of today has required more than ever the college degrees our officers

ENLISTED:OFFICER RATIO VERSUS EQUIVALENT CIVILIAN WORKFORCE RATIO *

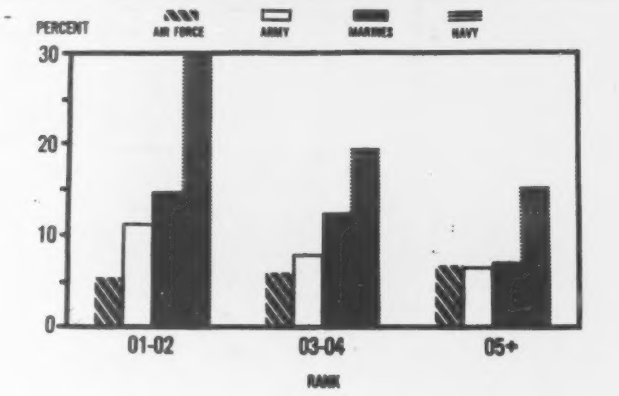


* - LESS EDUCATION: AT LEAST 4 YEARS OF COLLEGE

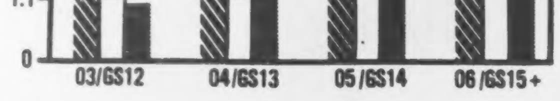
possess. The revolution in technology has created a significant demand for higher education in the work force which has affected both the military and civilian communities. While the DOD's enlisted to officer ratio has decreased from 6.6:1 to 6:1 since 1970 the civilian workforce ratio of non-college graduates to graduates has decreased from 6.2:1 to 2.9:1. As can be seen the DOD has done a far better job of holding the line against the trend towards more "Brass".

OFFICERS SEPARATED FROM DEPENDENTS

MORE THAN 6 MONTHS LAST YEAR



RATIO OF OFFICERS TO CIVILIANS



GS15+ = GS15 THROUGH SES

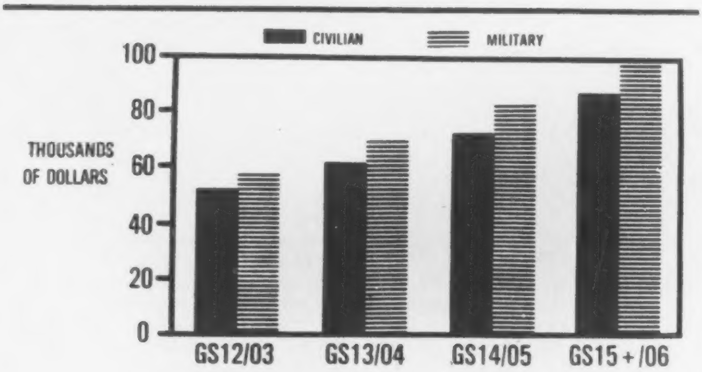
The rapid increase in technology and the sophistication of our modern day systems make professional supervision a high priority as the alternative is extremely costly in terms of both machinery and people. The success of the Navy in holding down the creep towards more degree holders and more supervisors is particularly noteworthy when considered against the high rate of turnover in the military sector vis-a-vis the civilian workforce.

Reductions in our officer corps forced upon us for 1987 will increase the amount of time our officers are spending separated from their families, will accelerate the turnover rate of supervisors and will result in decreased retention and ultimately in decreased readiness. If we are to continue to meet our commitments, while sustaining our peak readiness to respond around the globe in support of national objectives, we must not be constrained, but must be allowed modest growth to man our already approved force structure, comply with the Goldwater-Nichols Act, and allow sufficient OPTEMPO flexibility to show concern for our people.

The DON is using more civilians and is maximizing their effectiveness in those areas such as R&D, legal, and contracting where they can perform in war or peace. Not only has the use of civilians enabled us to reduce the growth of officers it has saved us money. This should be a primary consideration during these fiscally constrained times.

MILITARY AND CIVIL SERVICE

ANNUAL COST OF PERSONNEL



GS15+ = WEIGHTED AVERAGE OF GS15 THROUGH SES 6

The Navy is committed to the provisions of the Goldwater-Nichols Defense Reorganization Act of 1986, and in order to comply fully with the tenets of the act, we must assign significantly larger numbers of officers to out-of-service assignments. The attached chart depicts the current disparities between the services in numbers of personnel assigned to joint, to OSD, and to international duty. As is apparent, the Navy is seriously under represented and will require significant growth in our officer end-strength in order to fulfill those joint requirements. Not only these new out of service billets, but the increased training load required to develop joint specialists portends significant changes in our officer assignment process. The shift of emphasis and importance to joint and OSD duty mandated by the Goldwater-Nichols Act requires that the Department of the Navy have relief if we are to participate on an equitable basis and still maintain current commitments.

OFFICER OUT-OF-SERVICE STRENGTH

	ARMY	AIR FORCE	NAVY	MARINE CORPS	DoD
JOINT DUTY (JCS, OSD, CINCs, SECURITY ASSIST)	2,456	2,345	1,126	306	6,235
OTHER OUT-OF-SERVICE (DEFENSE/OTHER GOVT AGENCIES)	1,435	1,520	747	142	3,844
TOTAL OUT-OF-SERVICE	3,891	3,865	1,873	448	10,079
(% OF DoD TOTAL)	(38.6%)	(38.4%)	(18.6%)	(4.4%)	(100%)

We have been and will continue to be an efficient warfighting department but the FY-87 National Defense Authorization Act has not only eliminated all programmed FY-87 officer growth for the DON but has reduced us below our FY-86 programmed officer level. We request you reconsider the officer reductions currently planned for FY-88/89. The programmed strength is valid and essential to the warfighting readiness of the department and must be continued in order to meet the requirements levied upon us by Congress, our responsiveness to the CINCs, and our current commitments worldwide.

Sea-duty Enhancement Programs. Naval service can be arduous, dangerous, and dramatically ill-paid when compared to civilian careers requiring comparable skills. We have been able to bring this into better balance through our sea pay, submarine pay, and special pays. We have new initiatives to improve the targeting, cost effectiveness, and to preserve the real value of these critical elements of compensation.

Aviation Officer Continuation Pay (AOCP). One of the most dramatically successful and cost effective compensation initiatives in Navy history has been the AOCP program. Retention of naval aviators almost doubled in the last six years of paying AOCP. Pilots and NFOs are currently being retained at the rate of 46 percent and 74 percent respectively. Since the inception of the program, 1,225 additional aviators have remained on active duty as a direct result of AOCP. The resulting cost savings were over $1B, which would have otherwise been needed to train their replacements. Shortages remain, however, in nearly all pilot and NFO communities.

In each successive year of this bonus, Congress has imposed restrictions and reductions. We have seen a significant drop in the drawing power of this bonus during the past year. The smaller numbers and the shorter periods of eligibility have reduced the attractiveness of the bonus by an appreciable degree. We have seen a sudden spurt in resignations of pilots, and we believe the time to deal with this problem is now. The bonus amounts have been frozen since 1981, and we must have them restored to the approximate figures requested in this budget.

It is significant that AOCP is only targeted to those communities that have the greatest shortages. The greatest shortages are in our sea-going communities where family separation remains the single strongest factor leading to resignations. It is this single aspect of naval service where payment of Aviation

Career Incentive Pay (ACIP) (flight pay) does not itself, provide sufficient monetary value to retain experienced aviators, and it is this sea-going community that AOCP specifically targets.

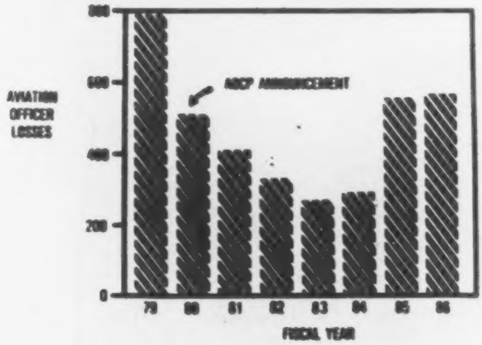
In order to retain more aviators, we will be proposing enhancements to the Committee which should increase the attractiveness of the AOCP bonus by increasing the value of a six-year contract and eliminating the current offset to ACIP. This remains the most critical compensation initiative we require.

NAVAL AVIATOR SHORTAGES

COMMUNITY		PROJECTED SHORTAGES OF MID GRADE OFFICER
VAL/VFA	PILOT	
(Light Attack)		-90
VF	PILOT	-202
(Fighter)	NFO	-17
VA(M)	PILOT	-65
(Medium Attack)	NFO	-18
VAQ	PILOT	-90
(Electronic Countermeasures)	NFO	-37
VS	PILOT	-28
(Carrier ASW)	NFO	+18
VAW	PILOT	-14
(Carrier AEW)	NFO	-2
VQ	PILOT	-38
(ECM/COMM)	NFO	+18
HS	PILOT	-27
(Carrier ASW)		
HSL	PILOT	-115
(Lamps)		
VP	PILOT	-171
(Maritime Patrol)	NFO	+11

NFO - NAVAL FLIGHT OFFICER

AVIATION OFFICER CONTINUATION PAY BONUS EROSION IMPACT



Nuclear Officer Incentive Pay. The shortage of experienced nuclear-trained officers in the grades of Lieutenant Commander through Captain continues to be our most serious officer inventory management problem. These officers are required as Commanding Officers, Executive Officers, and Department Heads at sea as well as for key support billets ashore.

Enhancements to Nuclear Officer Incentive Pay (NOIP) enacted in FY-86 will enable us to grow larger inventories of these officers by optimizing accessions and maximizing retention of nuclear-trained junior officers. Currently, only 33 percent of the nuclear qualified lieutenants with five to nine years commissioned service have signed up for continuation pay (COPAY) agreements. To enhance the effectiveness of the COPAY provisions of NOIP, we intend to increase the yearly COPAY rate by $1,000 as authorized by existing legislation. We believe that the resultant increased differential between COPAY and the annual incentive bonus will encourage significant increases in the number of junior officers opting to execute long term agreements to remain on active duty. Projections show that this program will allow us to reduce the experienced nuclear trained officer shortfall from 22 percent to 12 percent by the end of FY-92.

The long-term nature of this problem requires that we have permanent authority to temporarily (SPOT) promote some exceptional lieutenants to fill certain essential lieutenant commander engineering billets. SPOT promotion is a no-additional-cost management tool - all promotions occur within statutory grade ceilings - and is used only when needed.

Additionally, action is needed to restore value to Submarine Duty Incentive Pay (SUBPAY). SUBPAY has proven its incentive value in attracting and retaining sufficient inventories of experienced officer and enlisted personnel in the arduous submarine force career. However, since last increased in FY-81, SUBPAY has eroded in value by over 40 percent. Consequently, both submarine officer and enlisted retention are demonstrating precipitous declines. Submarine officer retention in FY-87 is projected to be 8 percent or more below the retention level achieved two years ago. Similarly, second and third term submarine enlisted retention dropped 13 and 7 percentage points respectively over the past year. Increasing SUBPAY by 35 percent will mitigate these negative trends and is a small price to pay for retaining the vast experience and talent of our submarine officers and enlisted personnel to ensure our continued ability to meet submarine manning requirements. Failure to take this action now to adequately compensate personnel for the particularly rigorous nature of submarine duty will result in increasing losses of experienced personnel, necessitating considerably more expensive measures in the future.

Recruiting and Advertising. As the target population for recruiting grows smaller every year and the economy grows strong, recruiting becomes increasingly more challenging. We have found disturbing survey evidence that youth awareness of Navy and Marine Corps programs declined in direct correlation with the reduced advertising of the last two years. We are asking for increased funding for both recruiting and advertising as a top Navy priority.

Material Readiness

Next to personnel, material readiness has received the highest funding priority of all Navy accounts during the last six years. As we move steadily to our 600-ship Navy in 1989, we have maintained funding for material readiness proportionate to the growth in ships and aircraft. The FY 1988/1989 budget should continue to support that proportion and the steady improvement in overall readiness outlined earlier. We are requesting funding, for instance, for the ships' maintenance program to provide for the overhaul of 56 active and 5 Reserve ships. This is being done at considerably lower cost because of our shifting of overhaul contracting to a more competitive process based on fixed-price bids. It reflects also the carefully engineered extension of operating periods between overhauls for ships and aircraft, and the overhauling of selected systems during shorter regular maintenance availabilities.

The FY 1988/1989 funding request for flight hours has actually decreased from the past through more rigorous training discipline and financial management. This has been accomplished while maintaining our goal for TACAIR/ASW air crews of 25 hours per crew per month and completing the stand-up of the fourteenth air wing.

Ship steaming days (50.5 days per quarter for ships in forward deployed fleets; 29 days for other ships) are funded at the same rate as FY-87 adjusted upward for the larger size of the fleet. This figure is based on the required steaming days to maintain readiness and training.

Aviation Support. Planned procurement of Aviation Spare Parts (AVCAL), Aircraft Armament Equipment (AAE), Aviation Weapon Support Equipment (AWSE), and Ground Support Equipment (GSE) is on track. Current funding provides for 90 days of AVCAL for 13 carriers in 1987, for 14 in 1988, and for 15 by 1989. GSE, AAE, and AWSE will achieve 100% carrier fill by 1988 through competition and procurement savings.

Ammunition. A major reform of our procurement practices in munitions, emphasizing competition and dual sourcing, has made it possible now to have in hand the production rates necessary to reach our complete warfighting sustainability goals by 1991. That procurement rate is funded in the current budget. We intend to have second sources for all major requested surface-to-air and air-to-air missiles, ensuring that we will be able to sustain our steady buildup toward inventory requirements at the lowest possible cost. Full funding of our requests is essential if we are to maintain the efficiency and cost reductions we are now achieving through competition and production rates at optimum levels for lowest cost. Furthermore, we intend to continue efforts to use off-the-shelf technology to procure our weapons rapidly, short-circuiting the typically long and expensive development process, thereby providing rapid enhancements of our warfighting capabilities. The PENGUIN MK II MOD 7 missile, which was developed by Norway, is such a program and will provide us a near-term stand-off capability for ASW helos.

Marine Corps Sustainability

For the last six years the Marine Corps has placed the highest priority on readiness and sustainability. Personnel, equipment, supplies, and training are at unprecedented peacetime readiness levels. Sustainability has been significantly improved in all areas. Ammunition and missile stockage, as well as supplies and secondary repair parts, are now at or near objectives in most categories. We must continue to receive support for this vital effort.

Maintenance of Real Property

A recent review of our Navy shore facilities revealed that their physical condition is deteriorating. The cure for this growing problem lies in strong support of all portions of the Navy's military construction accounts, particularly those areas which go to facility replacement or modernization and the maintenance of real property portion of the O&M,N appropriation. Historically, these two accounts have been used to absorb fiscal reductions and as offsets in favor of other programs. Although the impact of these types of reductions has been difficult to measure in the near term, in essence, we have mortgaged our future by deferring replacement and maintenance. Your support is required to support the needed modest increases we are seeking to enhance the condition of the Navy's physical plant ashore -- an area which is objectively tied to our readiness posture -- and also to retention and quality of life measures.

We recently conducted a review of the authority and command relationships of our major naval shore installations. As a result of that review, we directed several changes that will strengthen our shore commanders' authority and improve their responsiveness to the needs of the fleet. This initiative will also enhance our commanders' ability to monitor management of their maintenance of real property programs.

Strategic Homeporting

In the 1970s the Navy budget was cut 22 percent, adjusted for inflation. The fleet shrank from 950 to 479 ships and many naval bases were closed by necessity. Drastic shortages of funds forced a consolidation that brought a coincident military vulnerability. Today we have 116 ships based in the Norfolk area, 106 in San Diego, and 71 in Charleston, S.C. President Reagan's expansion adds 120 ships to our fleet, and it is necessary to homeport them in a strategically sensible yet affordable way. A major initiative derived from our strategy has been the effort to decrease the vulnerability of our fleet and our vital merchant ports through an expanded Strategic Homeporting Program (SHP). We are currently executing four major homeporting initiatives with a battleship battle group in Staten Island, New York; a carrier battle group in Everett, Washington; a battleship battle group, carrier battle group, and other vessels spread throughout the Gulf state ports of Corpus Christi, Pascagoula, Lake Charles, New Orleans, Mobile, Pensacola, and Key West; and an expanded battleship battle group in San Francisco, Long Beach, and Pearl Harbor. We have done this through competition and working with the local communities to find the lowest possible cost solutions. We are continuing our program and will meet our goals despite Congressional FY-87 cuts of $10M in MILCON for Staten Island and over $52M for Everett, Washington. .We are working to comply with specific FY 1987 Congressional language and will comply with the mandated **$799M** budget cap for military construction, family housing, and non-appropriated fund support for the strategic homeporting concept.

A valuable dividend from these initiatives will be the large expansion of our private enterprise industrial support base. The Navy will derive great savings from the increased competition and much healthier mobilization potential from spreading the work in maintenance repair and support services. Dispersal of forces to more ports and to less concentrated ports improves our defensive posture, complicates enemy conventional mine and cruise missile warfare targeting, and minimizes the risks associated with a relatively simple but properly placed attack from the Soviet non-strategic submarines that now patrol our coasts. Homeporting in more diverse geographical locations on each coast provides us an opportunity to train and operate in a variety of environments, with less wasted transit time. Homeporting in Puget Sound and New York provides permanent naval capabilities to the Northeast and Northwest sealanes and ports. Dispersed homeports in the Gulf provide the same presence to the sealanes through which must pass most of NATO's vital reinforcement shipping, now heavily targeted by the Soviet and Cuban Navies. This new capability in the Gulf will greatly enhance our responsiveness in Caribbean and Central American contingencies.

II. Shipbuilding

The FY 1988/1989 budget funds a total of 35 new-construction, ships, and eight conversions. All of these ships are for the modernization and maintenance of the 600-ship Navy in the '90s, rather than force-building to that number, already achieved during the last six years.

Aircraft Carriers

The FY-88/89 budget includes $600M and $800M respectively to begin procurement of the long lead equipment required to economically purchase two replacement CVNs. FY-88 funds will procure equipment to support a contract award for CVN 74 in FY-90. FY-89 funds will procure equipment to support both CVN 74 and a contract award for CVN 75 in FY-93. Since submission of the FY-88/89 budget, these carriers have been the focus of much discussion often based on incorrect information. To set the record straight for further discussion, let's begin with accurate information.

A balanced force of 15 deployable aircraft carriers is the core element of this administration's commitment to the 600-ship Navy and to maintaining the maritime superiority necessary to execute our national strategy. Fifteen carriers have been authorized and funded by Congress to fulfill this commitment. We have just commissioned the THEODORE ROOSEVELT (CVN 71) last October, which is the 14th deployable carrier; USS ABRAHAM LINCOLN (CVN 72) delivers in 1990 as the 15th; and USS GEORGE WASHINGTON (CVN 73) will join the fleet in 1991 as the replacement for the then 46-year-old USS CORAL SEA.

The President's National Security Strategy calls for a commitment to maritime superiority. The global wartime commitments inherent in this strategy require a minimum 15 deployable carrier battle groups to carry out the CINC's operational plans. This force level is the minimum essential force needed to meet their requirements in times of war or peace since peacetime operations are conducted in the same waters in which we will engage the enemy in war, but at approximately 1/3 the level of effort. It takes three carriers to keep one forward deployed on an acceptable peacetime operational tempo that allows sufficient time at home to sustain required retention of our career personnel.

We cannot mortgage the future by hoping that our venerable but older carriers will remain indefinitely capable of meeting the changing threat posed by the Soviet fleet and the forces of its overseas proxies. The USS MIDWAY, commissioned in 1945, will be 52 years old when retired from active service, under this procurement strategy, and the follow on FORRESTAL-class carrier will be over 45 years old at retirement in 1999. An aging carrier force beyond 45 years means marginal warfighting capabilities, escalating maintenance costs, and increased time for ship repair service. MIDWAY and CORAL SEA, which are approaching 45 years of service at this time, substantiate this assessment.

Thus, these carriers are not intended to supplement current force levels, but to replace two of our present ships as they approach the age when repair and equipment updates required to meet current threats become economically infeasible. Carrier acquisition takes approximately eight years. Therefore, their inclusion in the FY-88/89 budget will provide timely replacement carriers by the end of the century. This initiative does not, as some critics would have the public believe, include a commitment to fund additional battle group assets. The cruisers, destroyers, and support ships for the 600-Ship Navy are already in place or included in planned out-year budgets, and would be needed for their naval tasks even if we had no carriers.

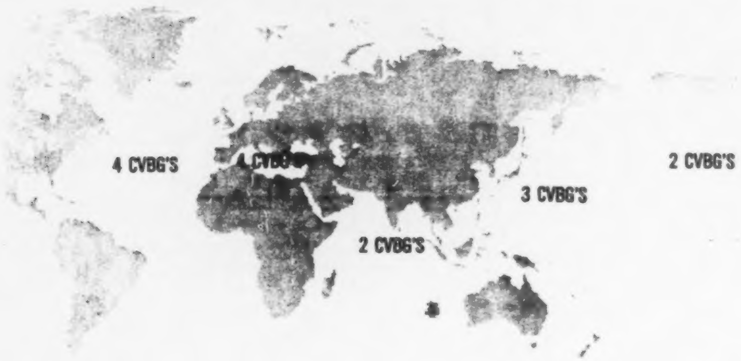
The planned aircraft procurement profile to meet projected requirements is on track and has not been mortgaged to pay for CVN 74/75. In FY-95 we will have a projected inventory of 2321 carrier aircraft to fill the 1306 requirement for 14 Active and 2 Reserve Airwings as planned. This allows the Navy sufficient tactical aircraft to manage attrition, pipeline, and depot maintenance requirements and fully outfit the 15 deployable aircraft carriers.

Recently the argument has been presented that the acquisition program for these replacement carriers has been at the expense of other services' programs. This is not the case. Long lead funding for the two CVNs was provided completely within planned Navy budget authority. Army and Air Force programs are not paying for Navy aircraft carriers.

Armed with these facts, let's proceed to look at why support of this procurement strategy makes sense. The fiscal reality of a declining total obligational authority and the requirement to submit a two-year budget demanded careful scrutiny of the existing FYDP to ensure that the best investment plans were being pursued. In preparing the FY-88/89 budget, review of long range business/investment strategies revealed that the best return on the topline

Navy dollar could be obtained by restructuring the SCN account to accommodate the required replacement carriers to sustain the 15 deployable carrier force through the further use of the innovative CVN acquisition program currently in effect.

FIFTEEN DEPLOYABLE AIRCRAFT CARRIERS ARE THE MINIMUM ESSENTIAL FORCE DETERMINED BY THE JOINT COMMANDERS-IN-CHIEF TO MEET GLOBAL OPERATIONAL REQUIREMENTS AT A PRUDENT LEVEL OF RISK.

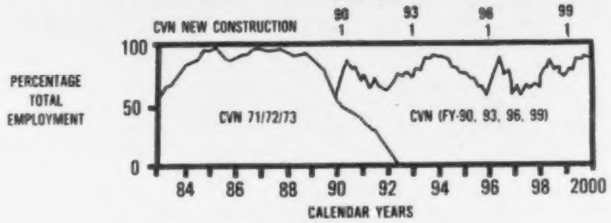


That review process revealed that by providing long lead funding for two new NIMITZ-class CVNs in this budget request, we could save an estimated $3B over the amount required to achieve replacement carriers in the previously planned and programmed ship acquisition plan, which would have caused disruptive peaks and valleys in the shipyard force, as well as in the procurement of steel and components.

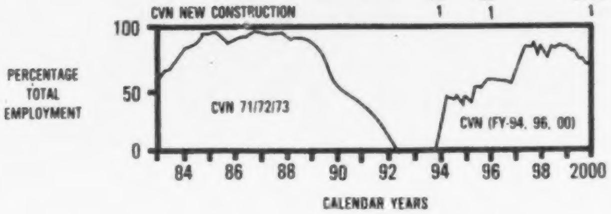
The CVN series production and modular construction process applied to ROOSEVELT, LINCOLN, and WASHINGTON is demonstrating dramatic cost savings resulting from an efficient material acquisition profile and from ship building learning curves among the workforce. The early and below budget delivery of THEODORE ROOSEVELT in October 1986 confirmed the advantages to the taxpayer of this acquisition plan. Studies indicate that delays required in carrier procurement will increase the cost approximately $250M per ship per year. Adhering to a delayed replacement profile will result in the serious degradation of the shipyard workforce and supporting construction skill base. Today 42 states share the total industrial package that supports the current carrier construction program. As can be seen by the accompanying chart, a two-year break in this required replacement program would be extremely costly and counterproductive to our American ship related industrial base.

CARRIER-RELATED INDUSTRIAL BASE

BUY NOW



BUY LATER



Finally, let's explore the perennial criticisms that accompany every new carrier request.

- Large vs. Small. There is no serious debate on the issue of large versus small carriers. All thorough studies that look at today's warfare environment at sea, give overwhelming support to the large NIMITZ-class carrier. Maintaining air superiority is essential to modern warfare, and the smaller size carrier is restricted in all capabilities, vis-a-vis, the large nuclear carrier. Some of the most important reductions in capability include: small carriers lack the speed and endurance of the big deck; the poor sea keeping qualities of smaller carriers will curtail flight operations sooner in bad weather; smaller deck areas limit the required aircraft in performance as well as numbers; the reduced volume on smaller ships limits weapons mix and storage capability which equates to reduced sustainability and increased requirements for underway replenishment; a ten year review of carrier landing accidents showed the smaller decks with nearly double the rate of the NIMITZ-class; the large deck carrier is able to sustain far greater combat damage and continue operating due to built in redundancy as well as superior damage limiting capabilities. Smallness of size does not diminish detectability. In today's world of satellite technology and sophisticated reconnaissance systems, a 10,000 or even a 5,000 ton vessel runs about the same risk of being detected as a 90,000 ton carrier. To summarize, no ship combines the vast array of offensive and defensive capabilities in such a powerful cost-effective platform with equivalent survivability and economies of scale as the NIMITZ-class carrier. If you want to win the high jumping championship you need a man who can jump seven feet, not seven men who can jump one foot. So it is that in responding to a wide variety of contingencies where the dominance of the air is vital to mission success, nothing can substitute for the large deck carrier.

- Vulnerability. The sophisticated technology of modern weapons and delivery systems makes everything vulnerable to a degree. But large deck carriers are the least vulnerable and most survivable ships we have along with our recently refurbished battleships. Their speed and maneuverability make them far less vulnerable than a land base which can't move at 31 knots or far less vulnerable than a Army division which moves at about 4 knots. It is one thing to hit a carrier with a missile; it is another to damage it sufficently to prevent it from launching aircraft, and it is quite another order of magnitude to sink it.

While smaller ships have far less to throw at incoming threats, and while a single hit by a Soviet cruise missile can put a smaller ship out of action, the larger carrier can bring into play a far greater array of defenses to prevent itself from being hit. If it does get hit, its greater size, greater degree of watertight compartmentation, greater damage control resources, and other survivability features enable it to absorb several such hits under most circumstances and continue to carry out its mission. No ship currently in commission, except the larger carrier, has the huge mass and structural strength to withstand repeated hits by modern Soviet cruise missiles. And no ship but the carrier can dominate the air space within 500 - 800 hundred miles of the battle group, making an attack much more difficult and less likely to succeed. Thus, the vulnerability argument, when analyzed carefully, becomes one of the strongest arguments we have for building large, powerful, survivable ships. The Soviets have gotten the message and now are entering the large deck carrier competition. The future threat clearly calls for the requirement to sustain our level of 15 large deck carriers.

- Nuclear vs. Conventional. For aircraft carriers, the case for nuclear propulsion is overwhelming. The space needed in conventional carriers for fuel oil provides a nuclear carrier with three times the ammunition and four times the aircraft fuel storage. This provides greatly increased endurance in combat between replenishments and fewer replenishment ships. Its reactor fuel is good for 25 years, eliminating the oil tanker umbilical cord. The latter advantage is especially important when operating, for example, in the Indian Ocean. Also of potentially substantial importance is the extra speed of the nuclear carrier. In a crisis in the Eastern Mediterranean, for instance, a nuclear carrier can make a high speed transit from Norfolk two days sooner than a conventional carrier. Pilots close-in on final approach, and corrosion control officers would also add that it is good to get rid of stack gases and smoke. The initial investment cost differential between conventional or nuclear powered carriers is more than offset over the service life of the nuclear carrier. This fact and the overwhelming military advantages led to Title VIII of the Defense Authorization Act of 1975 stating that new construction of major combatant vessels of the U.S. Navy authorized subsequent to the date of the act becomes law shall be nuclear powered.

- Readiness and Sustainability vs. Force Structure. We have not sacrificed readiness and sustainability to support our force structure. Quite the contrary is the case. In our current budget submission, readiness and sustainability will increase its share of the Navy's total obligational authority from 60.5 percent to 63.7 percent. Of the four pillars, sustainability has witnessed over 11 percent annualized real growth from FY-80 to FY-89 -- more than double any other category in our budget pillars.

To summarize, the overall requirement to replace our aging carriers is not new; just the timing and procurement strategy have changed. Fiscal constraints demand that we find ways to optimize the Navy's topline spending. These two replacement carriers will be carbon copies of USS NIMITZ with no changes except those that are cost reducers benefiting from advanced technology like fiber optics. Funding these starts now will avoid increased costs later on.

Can we afford two carriers starting now? The answer is an unequivocal "yes". The moderate adjustments required in the shipbuilding and other procurement accounts are acceptable when spread out over the 8-year outlay of the program. The dollars saved allow buy back of these adjustments in out-year budget lines. Indeed, we cannot afford not to start them. To fail to do so might someday put us in the untenable position of not being able to respond affirmatively, forcefully, and effectively to the established requirements for maritime superiority. We maintain the industrial capacity to rapidly increase production of ammunition and even aircraft but this is not possible with our carriers.

TRIDENT Submarines

The FY 1988/1989 budget contains funding for the 15th and 16th OHIO-Class submarines, which will have a TRIDENT II (D-5) missile configuration. These ships will be the first of the class to be competed between General Dynamics and Newport News.

688 Attack Submarines

The FY 1988/1989 budget contains funding for five improved LOS ANGELES-Class. It is essential, now that we have both Electric Boat and Newport News producing these submarines with great efficiency, in order to take advantage of the capacity to produce the numbers required at substantial savings. In the FY 1985 five-year plan, we estimated the average unit cost of the FY-88 and FY-89 SSN 688 class submarines at about $823M. Our sustained management initiatives, head to head competition, and the success of the President's economic program have driven the estimated average unit cost for the five SSN 688 class submarines in our FY-88 and 89 budget request down to about $693M. This 15 percent unit cost reduction will save about $650M for the five FY-88/89 submarines, and in effect, our initiatives will allow us to build five submarines instead of four within current constraints.

SSN 21 Attack Submarine

The FY 1988/1989 budget contains funding for the first of this extremely important new class of attack submarine, designed to counter Soviet threats in the full range of expected missions far into the twenty-first century. SEAWOLF will be quieter, faster, deeper diving, more heavily armed, and more capable of under-ice operations than today's attack submarines. Authorization for the first ship is programmed for FY-89. An absolute ceiling has been placed on costs of the lead and follow-on submarines of this class. On 10 December 1983 we approved the conceptual design and established a lead ship price at a firm ceiling of $1.6B in FY-85 dollars, and a firm ceiling of $1B for the fifth and follow-on submarines. This was the successful approach used on DDG 51 and is being applied to all new ship classes. SEAWOLF has been designed to meet all her performance requirements and will remain within these cost caps.

AEGIS Cruisers

The FY 1988/1989 budget contains funding for 4 TICONDEROGA-Class AEGIS cruisers, leaving only one ship in FY-90 to complete the 27 ship class. These ships will be competed on a fixed-price basis for the fifth straight year between Bath Iron Works and Litton.

AEGIS Destroyers

The FY 1988/1989 budget contains funding for 6 ARLEIGH BURKE-Class destroyers. The lead ship was appropriated in FY 1985, and we will begin competitive series production in two shipyards in FY 1987. These ships are not force-builders, but will replace existing DDG 2 and DDG 37-class as these older ships retire.

Amphibious Ships and Landing Craft

Six years ago we embarked on a program to expand our amphibious capability to meet the lift requirements of the assault echelon of one Marine Amphibious Force and one Marine Amphibious Brigade. That program is progressing well. All of these ships will incorporate design features to operate the new generation of Marine Corps equipment such as the CH-53E, the MV-22 OSPREY (formerly the JVX), the AV-8B HARRIER, the LCAC, and the complete new suite of armor, artillery, and infantry equipment now entering the Marine Corps inventory.

LHD-1

The FY 1988/1989 budget contains funds for the 3rd and 4th ships of the new WASP-Class convertible amphibious V-STOL carrier, to be built in FY-88 and FY-89 respectively.

LSD-41 (CV)

The FY 1988/1989 budget contains funding in FY-88 for the first cargo variant (CV) of the LSD-41-Class amphibious ship. The LSD-41 (CV) is a basic LSD-41 hull, optimized for cargo space.

LCAC

The FY 1988/1989 budget requests funding in FY-89 for 9 new Landing Craft Air Cushion (LCAC), initially produced by Bell Aerospace Textron. A second-source contractor--Lockheed--was selected, and competitive production by the two shipbuilders will continue with the FY 1986 SCN award. The outyears envision a 12 craft-per-year program. This is the most revolutionary enhancement of landing craft in Navy-Marine Corps Team history. The air-cushion technology will make an amphibious operation almost independent of a coast's hydrography and will provide access to about 70 percent of the world's coastline in comparison with 18 percent today.

Mine Countermeasure Ships

The reconstitution of our mine warfare capability is in full swing. To support this effort, the FY 1988/1989 budget requests funding for three AVENGER-class mine counter-measure ships - a program we have restructured in accordance with our own management initiatives - and funding for two mine hunter coastal (MHC) ships.

Support Ships

The FY 1988/1989 budget contains funding for one fast combat support ship (AOE), three ocean surveillance ships (T-AGOS) and one oceanographic research ship (AGOR), four fleet oilers (TAO), and, jumbo conversion of three oilers (AO). These twelve ships will be awarded through fixed-price competition.

Sealift and Maritime Prepositioning

Our budgets for the last six years have included significantly more money for strategic sealift than all previous budgets going back to World War II put together. The FY 1988/1989 budget sustains that momentum with funding requested for the conversion of 4 more auxiliary crane ships (T-ACS). We have had much success with our program to grow the Ready Reserve Fleet from 32 to 108 ships, having recently purchased 13 barge and vehicle carriers for $206.7 million. We are expanding our objective to achieve 100 dry-cargo ships, plus additional bulk oil carriers. The final two Fast Sealift Ships were delivered in 1986, completing the eight SL-7 ship upgrade to lift rapidly an entire army armored division.

III. Naval Aviation

The FY 1988/1989 budget request contains 497 new Navy and Marine aircraft. This will build to an active inventory of about 5100 aircraft, with roughly a quarter of these operated by the Marine Corps. Our 14th active air wing was commissioned in late 1986, will be operational by mid-1988, and our two reserve air wings are currently modernizing as part of our horizontal integration planning.

F-14D TOMCAT

This year we approved the plans necessary to achieve an all F-14D force. In FY-88/89, we will buy 12 TOMCATs per year and continue to buy them through the outyears as its performance has continued to keep it the best air superiority fighter in the world. Soon we will begin to remanufacture F-14Ds by upgrading F-14As, eventually arriving at an all F-14D force. This exciting concept combines the best operational bottomline with the most effective business strategy.

F/A-18 HORNET

The HORNET continues to enjoy unparalleled success in our Navy and Marine Corps. 1986 saw the Strike Fighter perform with distinction in combat operations off the coast of Libya.

Due to aggressive competitive practices and responsive contractor performance, the flyaway cost of the HORNET has dropped each year since 1982. The FY-88/89 budget request includes funding for 84 HORNETS in FY-88 and for 72 in FY-89. Although initially structured for a high production rate to gain the benefits of an early buy out, the combination of a significantly lower-than-forecast attrition rate for this aircraft, and the realities of an austere budget environment, dictate a modest stretch out in our budget request.

The Marine Corps will begin procurement of a two-seat HORNET to replace the aging RF-4 reconnaissance aircraft. This new HORNET will have a RECCE package that includes side looking radar, electro optic provisions, infra-red capabilities, Data Link, and a video management system. Also achieved in the two-seat upgrade is a greatly expanded night and austere all weather attack capability. These capabilities will expand the Tactical Airborne Controller Airborne/Forward Air Controller Airborne (TACA/FACA) mission capability for the USMC.

The HORNET has set records for reliability and maintainability and proven its operational viability across the spectrum of warfare.

A-6 INTRUDER

In the Libyan strike the A-6E proved once again that it is the best all-weather precision bomber in the world. The requirements for the numbers of this workhorse have increased significantly, based on inputs from joint and fleet commanders-in-chief. While all A-6s are meeting design specifications for wing life, it is not possible to extend the wing life as we had previously hoped. An incremental upgrade program is funded under a firm fixed-price contract that will install new wings that are warrantied for 8,800 hours.

A completely modernized A-6F is funded under a 1985 firm fixed-price contract that is continued this year. "Production-not-to-exceed" contracts are also budgeted. The A-6F will incorporate F-404 engines, avionics and survivability features of the HORNET, a night attack navigation system (NANS), and a new state-of-the-art dual mode radar. First production of the A-6F begins in FY-88.

AV-8B HARRIER

The Marine Corps AV-8B continues to prove itself superior to both the earlier A model and the A-4M. Thirty-two new aircraft are in each year's budget for both FY-88 and FY-89. Aircraft availability remains high and performance meets or exceeds expectations across the board.

P-3G ORION

Competition for the P-3G continues with four aircraft to be procured in FY 1990 followed by 25 per year through FY 95. The P-3G will be a modification of the existing P-3 airframe which will include an elongated bombay, new engines, improved cockpit instrumentation and replacement of obsolete components. The Update IV avionics package competition is proceeding with an anticipated initial operational capability (IOC) in FY-1990.

CH/MH-53E SEA STALLION

Funding for a total of 28 helicopters is requested in the current budget in consonance with the multi-year procurement plan. Fifteen aircraft will be MH-53 minesweepers.

SH-60B AND SH-60F SEAHAWK

The budget contains six SH-60Bs and 18 SH-60Fs in both FY-88 and FY-89.

V-22 OSPREY

The Navy is the lead Service in the development and production for all Services of this aircraft, which represents a major technological breakthrough in meeting the amphibious and vertical assault needs of the Marine Corps, the combat search and rescue needs of the Navy, and the special operations needs of the Air Force. In addition to replacing the CH-46, the MV-22 provides quantum advances to Marine Corps heliborne operations in range, speed, payload and reliability and is an integral part of its over-the-horizon capabilities. The ASW version, known as the SV-22, has been split off from the baseline program and is being evaluated as a candidate to fill the mid and inner zone battle groups ASW needs. Initial procurement funds for the MV-22 are requested in FY-1989.

E-6A HERMES

Vital communications between submarines at sea and their commanders will be better assured through our investment in three HERMES aircraft in FY-88 and seven in FY-89. These Boeing 707 derivatives provide significantly improved capability over the aging EC-130 aircraft they replace.

TACSIGINT Aircraft

The FY-88 budget submission reflects a major change in the airborne component of the Battle Group Passive Horizon Extension System (BGPHES). Our operational experiences off the coast of Libya re-emphasized the absolute value of a dedicated, battle group organic aircraft with manned flexibility. Our program now includes providing a replacement aircraft for the aging EA-3B which currently provides the fleet's organic tactical SIGINT capabilities. Selection of an airframe to serve this mission is presently under competition with the RFP just being released. The competition is intended to include only existing, carrier capable aircraft which could perform the mission with cost being the primary selection criterion. Avionics for this new SIGINT aircraft will be based on the existing EP-3 CILOP technology to take advantage of equipment commonality, better utilize R&D efforts, satisfy logistics requirements and ease operator familiarity. While this revised BGPHES program will require a dedicated aircraft, our approach will realize both near and far term savings as well as providing a significantly enhanced organic tactical SIGINT capability. The program as now defined couples a dedicated aircraft with surface terminals which permit a high degree of automation, room for expansion, as well as interoperability with Air Force platforms and high technology platforms of the future. This program is being developed in close cooperation with the National Security Agency and directly responds to the requirements defined in actual combat.

Aircraft Modification

The Naval Aviation aircraft modernization program continues to receive high priority in order to maintain pace with technology and provide the safest, most reliable aircraft to the fleet. To get maximum value for the taxpayer's dollar we have continued the proven product improvement approach based on firm-fixed-price development contracting which applies equally as well to modernization programs as to initial procurement.

- F-14D TOMCAT Remanufacture. This program combines nicely with the F-14D new procurement to reach an optimized mix in force structure between new construction and completely rebuilt versions of the finest Fleet Air Defense platform in the inventory. The APG 71 radar upgrade, the increased performance from the F-110 engines, and the digitized avionics buss concept ensure that the F-14D counters the projected threat in a heavy jamming environment through the 1990s. The radar gives the aircrew the ability to detect, track, and kill multiple targets at twice the former range, while the engine upgrade allows the TOMCAT to win the close in air combat maneuvering engagement when required. This added capability is provided in a balanced program at a 50 percent savings on the average unit recurring flyaway cost between the F-14D and the remanufactured F-14.

- A-6E Upgrade. The composite wing replacement and Systems/Weapons Improvement Program (SWIP) are essential to maintenance of full combat systems capability for our only all weather attack aircraft. This program is on track with first SWIP Initial Operational Capability (IOC) in the third quarter 1988 and initial wingsets delivering in FY-88. These important modifications bring the existing airframe and avionics up to the state of the art in structures and digitized avionics so necessary for a continued robust service life of the A-6E. Specifically, SWIP provides for HARM, MAVERICK, HARPOON, and SLAM missiles as well as state of the art Defensive Electronic Counter measure equipment. Also included are various survivability and vulnerability features and an improved air data computer for improved weapons delivery accuracy.

- EA-6B Improved Capability-II (ICAP II) Aircraft. This years budget closes out the highly successful conversion of ICAP I to ICAP II throughout the Prowler inventory. This upgrade provides the fleet with the most capable Prowler to date. Equipped with an inertial navigation system, the universal exciter jamming pod, updated displays, and the ability to interface with computerized mission planning systems this modernization provides the state of the art to meet current and projected electronic threats. The first ICAP II equipped squadron provided flawless coverage for the USS Saratoga/Carrier Air Wing 17 HARM missile strike against Libya last year.

- The S-3 Weapon Systems Improvement Program (WSIP) significantly expands the capability of the aircraft. The UYS-1 computer represents a quantum increase in on-board data processing capability. Addition of the APS-137 ISAR radar provides the invaluable capability to classify and target by radar from great distances. This, along with the addition of HARPOON missile capability, represents a formidable ASUW punch. Included also is the expanded electronic support measures (ESM) coverage of the ALR-76 system.

- The P-3C Update III aircraft will be tremendously more capable than its predecessor. The Advanced Signal Processor, the Advanced Sonobuoy Communications Link, and the Acoustic Test Signal generator all combine with the UYS-1 Signal Processor to double the P-3's acoustic capability to carry out its vital ASW role.

IV. Marine Corps Programs

Maritime Prepositioning Ships (MPS) Brigade Equipment.

The Maritime Prepositioning Ship program provides one of our most dramatic improvements in rapid force projection. The first MPS squadron went on station in the Alantic in 1985. A second squadron deployed to the Indian Ocean in late 1985, and the third deployed to the Pacific in 1986.

Norway Prepositioning

The Marine Corps program for prepositioning selected equipment and supplies in Norway allows a Marine Amphibious Brigade (MAB) to move from the United States to the critical Northern flank of NATO in days, with a minimum requirement for strategic lift.

M1A1 Tank

Funding is requested in FY-88 for advanced procurement for the M1A1 to support a buy of 66 tanks in FY-89. Acquisition of the M1A1 tank will represent a major upgrading of the armor capabilities within the Marine Corps.

Infantry Weapons Programs

The FY 1988/1989 budget contains continued funding for the fielding of new infantry weapons: AT 4 (anti-tank weapon), improved 81 mm mortar, a product improvement program for the Dragon, and the XM 4 carbine. The M249 squad automatic weapon (SAW) already in our inventory, is capable of engaging targets out to 800 meters with the new NATO Standard 5.56 mm cartridge. The shoulder-launched multi-purpose assault weapon (SMAW), also in our inventory, serves as an example of our modern acquisition process. In searching for a "bunker-buster", we bought a system off the commercial market and made a minor modification to it. We incorporated an Israeli rocket, a British Enfield rifle barrel, and a commercial spotting scope to develop the present system. As a result, we acquired an effective weapon in the shortest time possible at minimum cost.

V. Command, Control, and Communications (C3)

Major investment to improve naval C3 is strongly emphasized in this budget. Anti-jam communications development and implementation is our primary thrust to achieve reliable, secure tactical communications in support of fleet operations.

The Joint Tactical Information Distribution System (JTIDS) currently in development and production will significantly improve the ability of tactical units to exchange information using digital communications. To avoid duplicative efforts and to enhance multi-service interoperability and commonality, we cancelled our independent development of JTIDS and are adapting fully to the Air Force's program. In addition, we have joined with the Air Force to develop follow-on Common Integrated Communications, Navigation, Identification Avionics (ICNIA) through a joint service ICNIA program office. Other C3 programs contained in the FY 1988/89 budget request include investment in the MILSTAR communications system, a replacement UHF satellite constellation, surface terminal multi-plexing which increases satellite channel access by a factor of four, high frequency (HF) system improvements, and our strategic communications upgrade with the E-6A aircraft. All of these systems stress joint development and operational interoperability.

VI. Research, Development, Testing and Evaluation (RDT&E)

The FY 1988/1989 request for RDT&E is 9.85 percent of the Navy's total request. It represents the accomplishment of the pledge made six years ago to streamline and reduce the number of R&D programs and increase the funding where there is high payoff. We will have reduced from well over 600 RDT&E projects in FY 1981 to 385 in FY 1989. A significant proportion of the entire budget is devoted to programs currently in full-scale development, including the TRIDENT II (D-5) missile, the F-14D, A-6F, E-2C and V-22 and aircraft upgrade programs. Also of significance are the restructuring of the MK-50 advanced lightweight torpedo program to allow for additional developmental testing, and the continuation of the SEALANCE ASW Stand Off Weapon program.

ASW

The rapid advances in Soviet submarine quieting require continued vigorous effort to upgrade our ASW technology and tactics. Fundamental to the process of the maritime strategy is our maintenance of a robust ASW posture. ASW is an essential warfighting capability which must integrate submarines, ships, airplanes, surveillance, and space systems. These platforms do not operate in isolation; rather, their individual efforts are interrelated and interdependent. We must optimize the capabilities of our ASW "system" within the constraints of fiscal reason, rather than optimizing only individual unit capabilities. Advances in Soviet submarine technology will only reinforce this imperative; success in our future ASW effort requires development of mutually supportive forces with requisite command and control capabilities.

Submarine quieting drives the threat. We must push forward with our ASW initiatives, get them to sea, then refine them through block upgrades and improvements. Technological breakthroughs alone will not provide the answer; hard work and incremental improvements will continue to be necessary to stay ahead of the threat. To that end we have exhaustively studied our developmental ASW programs, illuminating the tough choices and providing a clear course to continued ASW superiority. The result of this extensive effort is a definitive ASW Master Plan and Investment Strategy, now in the final stages of preparation, which will be presented to the Committee as requested on 1 April and will provide the framework and priorities for an integrated effort to maintain our ASW margin of superiority.

VII. Reserve Programs

Six years ago the Department of the Navy undertook a major reorganization of Reserve components to move from a vertical to a horizontal relationship with the active forces. Essentially, that means that the Reserves must provide immediate augmentation to the active force in time of emergency across the entire spectrum of warfare. It means also that in peacetime we rely on selected reserves to provide real-time fleet support across their mission areas. The substantial progress we have made in integrating the reserves in day to day fleet operations and the progress we have made in providing the Naval Reserve equipment compatible with the active force have been described earlier.

A most successful new initiative begun in 1983 was the Sea and Air Mariner (SAM) program that now provides 7,000 first-term enlistments per year directly into the Naval Reserve. Enlisted SAMs perform six months initial active duty at fleet schools followed by a 5 1/2 year reserve drilling obligation. In FY 1985, a similar program for junior officer accessions directly into the Naval Reserve was initiated in the Navy, with the first graduate receiving his naval flight officer wings in January 1987. Officer Sea and Air Mariners perform up to two years active duty to achieve warfare qualification, followed by approximately six years in Selected Reserve billets.

The newly established Navy Sea/College Program, structured around the new GI Bill, targets a portion of the college bound youth market, which otherwise might not be drawn to naval service. This program encourages young people to make a two year active duty commitment to the Navy in return for educational benefits which will make college financially accessible. Sea/College participants serve two years of active duty in shortage skill areas through fleet on-the-job training programs, followed by four years of service in the Ready Reserve, and the remaining two years in the Individual Ready Reserve.

VIII. Naval Medicine

Meeting the health care needs of our active duty members in war and peace is the primary mission of the Navy Medical Department. All our medical programs grow from our primary commitment to provide combat medical care in the event of large scale conflict and to caring for our active duty forces stationed around the world. We are also committed to providing a wide range of health care services to our dependents and retired personnel. Although the first priority of Navy medicine is to provide medical care for combat casualties and for active duty members, we remain sensitive to the needs of all beneficiaries. Providing proper medical care to dependents and retirees is an important morale factor that directly affects retention.

Resource limitations, both in manpower and dollars, preclude our providing health care for all beneficiaries inside our facilities. We have developed a number of contractual programs to augment the services provided by active duty Navy personnel and civilian employees in our hospitals and clinics. The most important of these programs is the establishment of NAVCARE clinics. The clinics provide a broad range of primary care services to relieve overcrowded naval medical treatment facilities and are typically staffed by full and part-time primary care civilian physicians. We opened clinics in Jacksonville, North Carolina; Mayport, Florida; Norfolk, Virginia; and San Diego, California during December 1986. Over the next several years, we plan to open a total of 26 NAVCARE clinics nationwide. We need your support to continue this program and to expand it to locations with a clear need.

The quality of Navy medical care is under constant review whether the patient is the President of the United States or the newest recruit. During the past few years, we have undertaken several initiatives to strengthen our existing quality assurance program with solid results. According to statistics compiled by the Office of the Assistant Secretary of Defense (Health Affairs), the rate of malpractice claims against DOD is about half that found in the civilian community. In fact, over the last two years, there has been a 30 percent reduction in the number of malpractice claims filed.

A major initiative to strengthen the leadership and management of Navy medicine is the physician personnel management program. Navy physicians are now able to have a full career as Clinical Professionals (CPs) concentrating in assignments in patient care, research and teaching, or go into administration as Health Care Professionals (HPs). Until now, a doctor was required to give up practice if he wished to be promoted beyond 06.

The CP program offers Medical Corps officers the opportunity for full careers, including promotion to flag rank, in positions practicing clinical medicine, teaching, or supervising the practice of medicine and medicine research. It encourages the clinical practitioner to concentrate on patient care without being burdened with concerns about facilities, equipment, and other support requirements. The HP program, a career path from commander up to and including flag rank, is designed to utilize senior officers in executive and management duties in health care facilities, health care systems management, and related support functions including duty as commanding officers, executive officers and resource managers.

We are asking for an increase of 120 medical officer personnel. As the following table illustrates, the Department of the Navy is seriously undermanned in health care professionals:

RATIO TO ACTIVE DUTY PERSONNEL

	Army	USAF	DON
Physicians	1:154	1:154	1:200
Nurses	1:181	1:120	1:245
Dentists	1:462	1:381	1:457
Medical Service	1:137	1:194	1:315
Physician Assistant	1:1389	1:1264	1:2677

IX. Oceanography

Two years ago we began a major new initiative to reinvigorate naval oceanography. As never before, technology is opening the phenomenology of the oceans to science. Naval operations are becoming utterly dependent on ocean sciences. Our initiative includes the following programs included in the FY-88/89 budget:

- Upgrading and expanding our oceanographic fleet to satisfy research and operational survey needs. Two large ocean survey ship keels, for USNS MAURY and USNS TANNER, were laid in 1986. Our goal is a Navy-operated oceanographic fleet of 16 vessels.

- Pursuing strong educational initiatives. Ten top-notch naval officers are now enrolled in the highly successful Master of Ocean Sciences Program administered jointly by the Woods Hole Oceanographic Institution and MIT. And Dr. Robert Ballard, the first of five Secretary of the Navy Research Chair holders, continues to gather wide acclaim for his TITANIC discovery, done while testing Navy deep ocean systems, is evidence of a Navy commitment to world leadership in oceanography.

- Acquiring a Class VII super computer to support increasingly important ocean modeling efforts at the emerging Institute for Naval Oceanography and the Naval Oceanographic Office in Bay St. Louis, Mississippi.

- Improving fleet support services. The oceanography officer corps has taken a new, more operationally oriented course. Navy decision makers in the fleet are demanding their assistance continually.

- Increased substantially funding available to academic and private research.

- Improving at-sea support technology. We have seen two accelerated efforts to improve at-sea oceanographic support come to fruition. A prototype of the Tactical Environmental Support System (TESS) is at sea now bringing new agility in ocean data handling and prediction to the operator. Our emphasis on gaining a near-term ocean modeling capability has inspired rapid transition of models into operational use and has already gained enthusiastic support from the fleet.

A high priority of mine for the last five years has been the Navy Remote Ocean Sensing System (N-ROSS). Budget pressures caused its cancellation this year. Nonetheless, a strong need still exists -- and will continue to exist -- to sense critical ocean features on a regular and worldwide basis. We have directed and funded the Oceanographer of the Navy to search out affordable alternatives to this program and will be alert for budget amendment opportunities.

X. Space

With 72 percent of the earth's surface covered by the seas, the Navy has a priority interest in the maritime dimension of space. Naval operations are increasingly dependent on space systems strategically and tactically. Nearly 85 percent of all operational satellite system outputs provided to the Armed Forces are used by the Navy. The coordination of military service and civilian agency activities in space has been remarkably smooth and successful. The establishment of the Naval Space Command in 1983 and the Space and Naval Warfare Systems Command in 1985 has greatly improved the management focus of Navy efforts in space. The naval role in space will continue to include the operations, maintenance and tasking for space-based systems as well as their development and acquisition. Navy's principal objective in this endeavor is to ensure that space systems vital to combat capabilities of the naval services are available when required to support the operational commander across the spectrum of conflict.

XI. Conclusion

The progress outlined above and the programs proposed for the future should be a source of much pride to this Committee and to Congress as a whole. It is strong testimony to the proposition that Congress and the Executive Branch not only can work together, they can achieve dramatic results in a very short period of time. In six short years we have made a real change in the global maritime balance. We have increased available ship days 40 percent for submarines and 20 percent for surface combatants. No longer do we have a one-and-a-half ocean Navy for a three-ocean commitment; no longer do we have ships that cannot deploy on time for lack of trained sailors; no longer do we have a hemorrhage of talent from our career forces; no longer do we have an unending spiral of cost overruns and escalations; no longer does the world perceive the United States as a declining world naval power. The modest 4.1 percent average increase in the Navy/Marine Corps budget for the last six years has paid enormous dividends and provided capabilities many times more than that increment. When the rhetoric of commitment collides with the reality of unreadiness, peace becomes the victim. The cruelest arithmetic of all lies in the number of lives lost and resources squandered if deterrence fails. Ultimately, this is the most crucial equation in the budget debate.

Today we have a strategy that sustains deterrence not only because it meets the threat but also because it deploys forces ready and able to fulfill it. America is fortunate to have in the President and the Secretary of Defense and in positions of responsibility in Congress, leaders who recognize the truly incalculable cost of war. They recognize that, above all others, national defense is the first and most vital of all government services. As Alfred Thayer Mahan so aptly put it, "True defense consists in imposing upon the enemy a wholesome fear of yourself." We in the Department of the Navy have every confidence that the Congress will provide us with the resources we need to carry out our mission in a complex and frequently hostile world.

QUALITY OF SERVICE PERSONNEL

Secretary **Lehman**. I think the most important lessons to be drawn from the last 6 years, looking back, are really those that dispel certain myths that have been growing into acceptance as realities.

One of them was that the modern American generation of youth did not have the patriotism and did not have the motivation of prior generations. I think that we have seen in the last 6 years, whatever the intellectual debate over the wisdom of the volunteer force compared to universal service or a draft, that apart, which is an interesting debate, we have proved without a shadow of a doubt that this country has never ever provided a finer quality of men and women for the armed services than we have seen in these last 6 years.

We have broken every record in the Navy and Marine Corps since we have been keeping records for 200 years. And it has sustained year after year, because there is a sense of mission, of patriotism, of adventure, and of real professionalism.

We have added, as you know, nearly 80 ships to our fleets in the 6 years, and yet, with some specific exceptions of shortages of ratings, we are manned 100 percent, not the 91 percent that we were before.

So that myth is dispelled. We can always attract, regardless of the demographics and regardless of the economy, sufficient men and women for all of the services in peacetime, not in war but in peacetime. And that should be a source of satisfaction.

READINESS

The second is that there is an inherent contradiction between keeping a ready force and modernizing and building a larger force. As you pointed out in your opening statement, Mr. Chairman, we have raised the readiness of our entire Navy and Marine Corps to the highest levels we have ever sustained in peacetime, even as we have expanded. You can do both. That myth is dispelled.

Another myth that came to be almost common wisdom 6 years ago was that there was a certain inevitability to cost overruns, that we had had 30 some years of recurrent claims and cost overruns in shipbuilding, aircraft went up and up in price for the same airplane every year.

Now we have had 6 years of cost underruns. We have had five straight years of underrunning the President's budget in the shipbuilding account, and 5 straight years of underrunning the President's budget in the aircraft account, by audited figures.

As recently as last week, we put out a press release that in the last 5 years we have saved $2.2 billion under the President's budget in the aircraft account alone. All of our aircraft are cheaper this year, with one exception, the P-3, cheaper this year than they were 5 years ago. We are coming steadily down in unit costs.

That is because we have gone, as you rightly pointed out, to 73 percent competition. We compete everything we can possibly compete. We second source everything we can possibly second source.

We have genuinely reformed the way we do business, and not by changing the organization chart, by reorganizing, but by dealing with the process.

ACCOUNTABILITY

I was pleased that Senator Hollings raised the issue of accountability. I agree with him that one of the problems that has plagued our government in recent decades has been the dispersal of accountability and of authority and replacing it with a government of bureaucracy, of vast layer upon layer of unaccountable bureaucracy, in which people cannot be given authority to carry out things as they should, nor can they be held accountable.

If you lose that, ultimately you lose the ability to govern. What we are trying to do in the Navy is to reverse that process, reverse the polarity of constant bureaucratic bloat, and get rid of layers.

We have reduced the Washington headquarters alone, Mr. Chairman, 2500 billets. And it is not, as some tend to portray, impossible to do this. It is not necessary to create real human hardship by RIF's and layoffs. We have an average turnover in the Navy Department of 8 percent a year in our civil service. We have been able to reduce those 2500 billets in a humane way by reassigning all of the people to places where they are needed, even as we eliminate the bureaucratic bloat by early retirements and by the prudent slowing down of intake for short periods of time.

We have not had to do a single RIF. So there is nothing inevitable about bureaucratic bloat any more than there is anything inevitable about cost overruns and cost increases. We have shown it can be done. And the results are so dramatic that I think it points the way for the long term future.

SECOND SOURCE INITIATIVE

I have appreciated this subcommittee's particularly strong support given us for the second source initiative that we have had. I think it has dispelled the final myth that so many had taken in the beginning, that we could not afford to build and maintain an adequate military force.

We have shown that we have built a 600-ship Navy. All those ships are paid for, fully funded, and indeed they are underrunning and ahead of schedule. We have ordered a full $6.6 billion in cost underruns in shipbuilding alone, and we have done it even as we have had major reductions taken by Congress in each of the last 5 years to the Navy budgets.

Yet we still have kept shipbuilding at the pace that we originally had planned. We have still been able to keep readiness up. We have still been able to continue to bring second sourcing and competition in.

However, there is a limit, obviously, to how long this can go on if we have further years of negative growth. We do not need massive continuing growth. We have averaged 4.5 percent real growth over the past 5 years, that is all. And for that, you got a Navy and a Marine Corps today that is at least double the capability it was 6 years ago.

We have said that somewhere between 1 and 3 percent real growth, leveling off to 1 percent in the 1990's, we can continue to keep a fully ready 600-ship Navy and fully capable Marine Corps. It is not necessary to project constant, ever-increasing defense budgets.

But all of this can unravel very quickly if we have really mindless arbitrary cuts in budget authority, such as some of those contemplated in both houses of Congress as we speak. What we have built is remarkable in how fast we have been able to turn around a very deteriorated military structure, but it can be unraveled even more rapidly.

If some of the cuts that are being contemplated were in fact imposed, they are of a scale that would force us immediately to stop work and to lay off people and to simply fire sailors and Marines in very large numbers. Indeed, if we were to have to live with the outlay figures that I have seen approved on the House side, we would have to lay off 40,000 sailors if we were given a fair share of that outlay number.

Indeed, I would urge this committee particularly to focus on the issue of legislating outlays at the levels that are being contemplated by some other committees in the Congress, because the arbitrary figures being used in outlay targets not only would force far greater cuts than would otherwise be necessary, but they will force irrationality into the whole process.

This committee has been a partner in what we have done. All of us have spent thousands of hours working together, debating and compromising over numbers and types of programs to be funded and levels of end strength, military construction projects. As I have said, it is the way the process was envisioned by the founding fathers to work. I cannot say that of some of the other subcommittees that we have to work with, but it is certainly true here.

If these outlay figures are actually imposed, it will unravel and put a fissure of irrationality through all the work that you have done and we have done over the last several years and into the future, because things to meet those outlays will have to be done that have no relevance to the deliberations that you originally made in appropriating those things.

To meet those outlay numbers, incredible violence will have to be done to the common sense integrity of the balance in the program. That is a separate issue, but it is an important one.

STRATEGIC HOME PORTING

I was asked to comment on home porting. Strategic home porting, as I have repeatedly testified here, is not based on any particular academic theory of maritime strategy. It is based solely on common sense. It is not necessary to go into any great detailed analysis to understand why the Navy feels so strongly and has argued so forceably for this.

Today we have multiple cruise missile submarines, Soviet submarines, off our coasts, one of the highest numbers we have ever seen. We have been predicting this for years. We now have to live with a nuclear attack force in the Soviet fleet that is far larger than what was operational, for instance, in Hitler's navy at the height of World War II in 1942.

They are deploying off our coasts to be able to interdict our vulnerabilities. We are dependent not only to resupply our allies in time of war, but to keep our economy going in time of peace and war and to keep our commerce and our energy sources going.

We get five times as much oil from Alaska today as we get from the Middle East, and it all comes by sea through the Northwest and the Northeast Pacific sea lanes. We have no naval capability there. We are building it because it is essential to build it.

NAVAL ACTIVITIES IN GULF OF MEXICO

In the Gulf today, we have regular deployments of Soviet task forces. We have the Cuban navy there now in force, and soon a Nicaraguan navy built along the Cuban model which we now see beginning in Nicaragua.

Eighty-five percent of all resupply to Europe in a NATO contingency must come out of the Gulf of Mexico, where the ports of embarcation are located. For us not to have naval capability home ported and based in that vital area makes absolutely no sense.

But of course, not only the common sense of military dispersals, but the economic sense of maintaining a broad industrial base and maintaining a base for competition is even further rationale to keep this initiative strong. I believe we have established a consensus here in Congress for the basic common sense of carrying out the strategic home porting.

But it is essential also to understand that we have accepted, as we have in all of our contracting, a very rigorous discipline in the way we have done it. From the beginning, we have competed with all of the local communities, not to have an auction and not asking for high dollar figures to be donated, but to have each community band together and find the least cost way to the taxpayer to establish a base there.

So we now have a total figure for the entire implementation of all the home ports that is well under a billion dollars, which would have been spent on just one new home port under the previous procedures. We have capped this number at just under $800 million.

But to live with that, we have got to carry out on schedule the kinds of competitions and the kinds of contracts that those figures are based on. I am not worried today about a reopening of the basic wisdom of home porting. I think that, in no small measure due to the excellent articulation in the floor debate last summer that you, Mr. Chairman, and others in this committee led, it is no longer a particularly active issue.

But we are seeing cuts being proposed, and we have had cuts on the House side, that would severely cut into our Gulf port home ports and into Everett and interfere and delay our New York home ports.

This will mean much higher costs ultimately to the taxpayer, and I would urge this committee to look very hard at those MILCON cuts that have been proposed out of budgetary austerity.

AIRCRAFT CARRIERS

The issue of the aircraft carriers I had been asked to address, Mr. Chairman, I do not think anyone could have dealt with that issue more articulately than you did in the Armed Service Committee earlier this week. The issue is not expanding the need for aircraft carriers. I think there is an acceptance again, a consensus that 15 aircraft carriers are required for the long term regardless of the politics of a particular president, whatever his party is or his approach to national security.

We are dependent on five geographic areas of the world. Our vital interests are above debate, involved in those areas. If we are to provide capability in peacetime to deter, we must provide naval force all the time to those five areas.

In peacetime we can operate at about one-third the operational tempo that we have to in wartime where you have to sustain combat operations 24 hours a day. So, in an area in peacetime you can deter and carry out crisis management contingencies with one aircraft carrier. In wartime you need three.

And so, 15 carriers is not dependent on my approach or Admiral Trost's approach or whatever may be the trendy ideas about strategy. That force structure is based on our vital interests and the five geographic areas of the world.

So, I do not think that is very controversial any more. I think the more active issue, which is a legitimate issue, is in an era of budget austerity can we afford to proceed on the basis that we have proposed.

I would submit to you, Mr. Chairman, that whatever the budget level, that we ought to be building one carrier every 3 years because even if we were forced to reduce the size of the fleet, even if there were some new change in the world, for instance that our European and Japanese allies would pick up the responsibility for one of the five geographic areas like the Persian Gulf-Indian Ocean on which they are dependent and we are not directly, for oil supplies, if that were to happen and we could have a smaller fleet, still we ought to buy carriers at the rate and in the economic manner that we have proposed and retire them at 30 years instead of 45 years.

EXTENDING LIFE OF "MIDWAY"

It is far better, if you are going to have a smaller fleet, to have more modern ships which take fewer people, are far more survivable and far cheaper to maintain than extending older ships. We have found that most recently with the *Midway.*

The *Midway,* we are going to keep until 1996. She will be nearly 55 years old. She does not have the capability of the *Nimitz* class. She does not have the survivability. She cannot carry as many airplanes, and she is very expensive to run and maintain.

So, at whatever level you in the Congress establish, we in the Navy urge that you proceed with the early long-lead items for two aircraft carriers, and again we do not ask you to take on faith the $3 billion dollar savings that we have projected. We ask you only to look at what we have delivered on the pledge where you did accept our estimates of $750 million in 1982 for the two-carrier buy, and as you know now, we have saved over $2 billion on that two-carrier buy for basic economic common sense reasons.

Stability in the work force, which keeps your best skilled people which again make all the difference, and second, buying twice as much specialty steel at a time, getting more competition through buying two-ship sets of pumps and valves and so forth. So, the carriers in the way we are proposing to procure them, make eminent good sense regardless of the budget level and regardless of what administrations may come or go in the decades ahead.

TRIDENT FUNDING

I have been asked to comment also on the TRIDENT and the impact of the large increase in TRIDENT funding that is in the budget this year. One of the President's principal initiatives in 1981, in his strategic recovery program, overall his purpose was to re-establish parity.

He has said repeatedly, and we are in total agreement, a nuclear war cannot be won and must never be fought. And we should not seek to have superiority in nuclear weapons at the strategic level the way we must have in maritime affairs, because we are dependent on the seas in a way that the Soviets are not.

So, strategic parity has been the objective. The TRIDENT missile, the D–5 missile, has been a principal means to achieve that with the TRIDENT submarine as well. It is a very stabilizing part of the strategic initiative, in that given the accuracy and the hard target kill capability, and the extended range, we have a system which is inherently a second strike system.

We do not have to fire on warning. We have the capability to ride out any surprise attack because it is mathematically impossible for the Soviets to find in the ocean areas that this extended range missile now can hide in any number of these submarines.

We have the accuracy even at those extended ranges to take under attack the military targets, and so that D–5 acceleration with an IOC, initial operational capability of 1989 is an essential part of the total program which has brought the Soviets to the table finally to negotiate seriously on the base of parity to achieve real reductions.

I believe we now have, because of these programs, the basis for real common-sense pragmatic reductions at the strategic level. They have got to be achieved with real verifiability and on a truly equal basis, but now we have the basis to negotiate from strength through knowing that we have the programs like D–5 that will re-establish parity.

SOLE SOURCE MONOPOLY ON TRIDENT PROGRAM

Now, we have not been comfortable with the procurement strategy of the TRIDENT submarine or the TRIDENT missile. Both of these programs, we deal with a sole source monopoly and we believe, because of that, have a great opportunity to reduce the costs of both the submarine and the D–5 missile through competition.

We have spent a great deal of time studying it, looking at it, and we have concluded that we indeed should and will second-source the D–5 production missile. Lockheed has done a superb job in developing that missile. It is on schedule.

We have saved money on the orginal development estimates, but as we go into production now we want to compete and open it up for some of the other companies that have quite a capability to build such a missile.

Also, in the TRIDENT submarine, we have every expectation that we will soon recieve bids from Newport News to compete against General Dynamics for the TRIDENT submarine. So, we are very pleased with those developments and we think it is another way to save money in the long term.

Those are the key issues that you asked. You also mentioned the shortfalls and the cuts in aircraft and in aircraft modifications.

AIRCRAFT BUYS

In aircraft we have had to reduce the buys below what we would like to have, but we think we have done it in a balanced way. The program we have submitted to you will maintain a force of tactical aircraft for our carriers of about 2,500 aircraft.

We will need, for 15 carriers, for a fully balanced force, about 1,700 aircraft. The difference between the 1,700 and the 2,500 will be the maintenance pipeline and the training and the R&D aircraft that are needed for normal maintenance of a full force.

So, while we would like to have more aircraft, while we would like to see larger numbers, we believe we have a balanced proposal in the President's budget although there is not room for major cuts in our aircraft lines because we have already taken them in getting down to the lower figures mandated in the budget that we have submitted to you.

The one area where I think we went a little too far, and that is because after we took initial deep cuts in aircraft modifications, there was a subsequent budgetary cut within the Executive Branch that took us below what we now believe to be prudent levels.

You are familiar, Mr. Chairman, because this committee actively supported the re-winging of our A–6 aircraft as one example. We thought we could reduce the pace of that program based on the data available to us when we submitted the budget.

Since then, we have had an aircraft crash and new engineering data that tell us we cannot slow that program. We must go at the maximum pace to replace all those A–6 wings.

NROSS SATELLITE PROGRAM

So, we want to work with this committee to find the money we hope in cost savings in our own accounts since we submitted that budget, and in contract execution to adjust upward the aircraft modification line. Also, the NROSS satellite is a program I know you are interested in since you have been one of our champions of oceanography and the recovery that we have achieved in oceanography, you are very familiar with.

We had a cost overrun in that program that caused us to cancel it as the budget was put to bed. We now believe we have a program to bring the cost back down to the earlier estimates and knock off some of the gold plating, and we want to propose to the Department of Defense, to the Secretary of Defense and if it meets with his approval, to propose an adjustment to re-establish the NROSS oceanography satellite on a more affordable basis in the years ahead.

So, those are the issues that were raised. I appreciate again your very kind words and I look forward to answering any of your questions.

Chairman STENNIS. Well, you made a fine presentation here.

Gentlemen, I want to accommodate everyone if I possibly can. We have here, as I announced already, Admiral Trost and General Kelley, and I want them to have time to make their views known.

I happen to know these gentlemen have something they must do this afternoon and I am going to call on Senator Stevens and Senator Hollings now and give them a chance to ask questions or make comments or anything else.

Senator STEVENS. Thank you, Mr. Chairman, and I am grateful to Senator Hollings because I have to go to another meeting again. I did have to leave temporarily and I apologize to the Secretary and the Admiral and General Kelley.

I think we ought to note, if I am right, General Kelley, this is perhaps your last overview presentation, a young fellow like you retiring.

General KELLEY. June 30.

Senator STEVENS. We have enjoyed and will continue to enjoy working with you, General. You have done a great job, too.

OSPREY PROGRAM

I would like to ask just a couple of questions, Mr. Chairman. Last year we gave great support, I think, to the Osprey, the plane that I think has a great deal of promise. Do you think the funding in this budget is sufficient to keep the Osprey schedule from slipping, and have there been any changes in the approach of the Navy and Marine Corps to the use of the Osprey?

I think this is one of the first times, as I said last year, this V-22 represents the first time we have had occasion to participate in an entirely revolutionary development in the field of aviation, and I would like to see it keep on schedule.

Secretary LEHMAN. Well, Senator, I would like to say that there is no more exciting program, I think, in our Department of Defense than the Osprey program and its spillover into dealing with the growing crisis in civil aviation and the saturation of existing air routes, is going to be an enormous benefit to the world, but especially to the United States in air travel.

It will also revolutionize certain aspects of naval warfare. You are very familiar with the primary role of the V–22 in tremendously enhancing Marine amphibious vertical development, the survivability of those Marines and opening up a whole new dimension of capability.

But we also now are committed to go forward with a version to replace the S–3 carrier based anti-submarine aircraft. We have done the studies that show that it can provide a whole new dimension of being able to fly out to long distance contacts very rapidly, and then hover with a dipping sonar or use the sonobuoy systems that we are basing the basic package on.

So, the V–22 is going to expand into a lot of other uses than just the Marine program that has justified and still justifies on its own that expenditure. I am pleased to report that this was one of the very first total programs from start to finish that we have contracted for under the new Navy acquisition policy where we have advanced development in a cost-plus environment, but when we go to full-scale engineering development we move to a fixed price contract with a share line and we require not to exceed production options.

So that, we know what it is going to cost before we commit the money for full-scale engineering development. We signed that contract just over 1 year ago. It is on track. We are on schedule. The key engineering problems, risk areas, have been dealt with I think very well indeed, and it is in really good shape.

The money that is in the President's budget will meet the IOC's and right now it looks very good.

Senator STEVENS. General, are we going to slip on the schedule?

General KELLEY. Not if we have anything to do with it, sir. We rely on the Congress to keep the money in the budget for us.

Let me just talk about it for a moment and share the Secretary's enthusiasm. The Secretary and I have been with this program, as you know, right from its inception. It has been one of the most exciting programs within the Department indeed; in terms of commercial aviation, as the Secretary mentioned, within the country.

But I think the V–22, in conjunction with the LHD–1, which the distinguished Senator from Mississippi mentioned plus the LCAC, puts the whole amphibious capability of the United States right into the 21st Century, right on the forward edge of technology and gives us significantly increased capabilities. The Secretary mentioned one aspect which is so important to us, particularly in the high threat environments as we envisage them in the future and that is survivability. One of our primary concerns is to ensure the survivability of our Marines in that high threat environment, and this aircraft does it better than any other.

V–22 CAPABILITY FOR CARRIER USE

Senator STEVENS. How about the Navy? Admiral, are you going to adapt it to more than carrier use?

Admiral TROST. We are looking forward to the capabilty because it does markedly free us up from the constraints of carrier decks, having to launch aircraft with catapults and recover with arresting wires. We see, as the technology develops, a broad application of the Osprey to other applications including anti-submarine warfare capabilities to replace those aircraft currently in our inventory which will be becoming obsolescent, as well as for other uses in the areas of surveillance and possibly electronic warning aircraft.

So, we see a good future for the platform.

Senator STEVENS. Mr. Chairman, I think this Osprey, the vertical take-off, long range capable, dual purpose plane is just going to revolutionize what we are doing here. And you are right, John, when I think of that State of mine in Alaska, and what this plane is going to do in saving us runway costs even right here in the city.

We will not have to drive to Dulles. We will go over to the Union Station and get on a plane that will take us to a feeder plane, onto intercontinental or transcontinental aircraft. This is going to totally change our life, but you all are going to have to approve it first, and I think you will.

SEALIFT

I have got one other issue, Mr. Chairman, and I know there are others. The Secretary covered so many. I still am concerned about Sealift. It is not a provincial issue with me.

It is one that I have tried in all ways, as the Chairman knows, when I was Chairman of the subcommittee, to try and get something going like the old Mariner program or something to recognize the fact that we are so lacking in Sealift capability.

I understand that you have got a plan to create a military transportation command to coordinate Airlift-Sealift issues. Could you tell us what that would do, what focus that will bring on the Sealift problem? Will it change any minds as far as the administration is concerned?

Secretary LEHMAN. Well, Senator, I cannot for the life of me see any sense in that transportation command. You take the military Sealift command and put it out in Illinois under an Air Force command, it has to be taking the process of reorganizing for its own sake to the most absurd extreme.

So, I can only say that nothing good, to deal with the problem you are concerned about, can come from this constant process of further bureaucratizing and unifying something as complex and difficult as military Sealift, taking it away from Naval command and the seas and putting it out under a unified command in Scott Air Force Base.

Some hope to see great, good things come out of it. I hope they are right. I cannot see any merit in it. The problem of our strategic Sealift, I think is our real Achilles heel in a conventional war with the Soviets.

That is why we see Soviet attack submarines now operating regularly close to us. There have been almost ten major exercises in the Gulf of Alaska and the Northeast Pacific alone, where we see the Soviets deploying and practicing the ability to sink our Sealift, to interdict our vulnerable sea lanes, because they know we do not have the ability to replace the Sealift that we had in World War II, and we will never be able to get it back.

We were building two merchant ships a day in 1942 and we still could not keep up with the attrition. We will never build two ships a day ever again in this country because the industrial base has shifted and changed so dramatically that those yards are not there. The basic capital plants are not in existence.

The specialty steels and the infrastructure that builds those ships, now are not available in the United States. We are dependent on overseas sources for a great deal of our specialty steel and others.

UNITED STATES DEPENDENCE ON EUROPEAN SEALIFT

Senator STEVENS. We were dependent upon the European sealift, but now all the report we get is that that is declining at a rapid rate.

Secretary LEHMAN. That is right. It is a worldwide phenomenon with the exception of the Soviet Union which still maintains about a 2,400 strong merchant fleet compared to our 400 yet, we are supposed to be the sea coalition, so we have an Achilles heel there that has driven us in the Navy to depend more and more, as we must, on a forward strategy to prevent the Soviets from having the capability to come down and prey on our sea lanes and fight in our backyard.

As the Commander in Chief of the Atlantic said earlier in Senate testimony last month, if the battle for the Atlantic takes place in the Atlantic as opposed to in the northern water, then we will lose. That still is our part of the problem, and we are dealing with it. Nevertheless, the constant decline of our Merchant Marine, our merchant industry, the industries that support it, is a very alarming process.

We, the Navy, account for 90 percent of all employment and all work going on in the shipbuilding and repair industry today. That is why we cannot afford to cut any further into our shipbuilding account if for no other reason that we will lose forever our industrial base such as it is, such as we are holding together with Navy shipbuilding alone.

COMPETITION IN MERCHANT FLEET AREAS

One of the issues that I have repeatedly urged be taken into serious consideration is the whole pervasive problem of hidden subsidies and the lack of free competition in the international marketplace in the merchant fleet areas.

Shipbuilders abroad are heavily subsidized in ways that are not dealt with by GATT, and ship operating unions abroad, foreign mariners, are subsidized very heavily compared to our mariners. Our mariners unions have to provide in their price to the Navy or a shipping company a full 100 percent of salary to fund retirement accounts and medical insurance and those benefits that do not appear in a welfare state economy. They are all paid for by the state, so a shipper does not have to include those as allowable costs.

We have ignored all that. We have pretended that we have free trade in the maritime area, and in fact we have cartels and a total lack of free trade. It is only we who keep our eyes closed and say we live in free trade and we force our industry to operate as if it was in a level playing field. It is anything but, and we ought to deal with it.

Senator STEVENS. Mr. Chairman, I am convinced the Soviet trade policies have destroyed our Merchant Marine more effectively than their attack submarines could. We no longer have a Merchant Marine. They have the merchant marine of the world now, and China is building one.

It is one of the saddest aspects of our military policy, that we have been unable or unwilling to recognize that they have used their policy to destroy our Merchant Marine before any conflict was initiated. Somehow or other we have to get it back.

I hope you are wrong in this military transportation command. It is the first time I have heard that it is not going to be under the Navy. That is the only place where it should be if it is going to deal with sealift.

Secretary LEHMAN. It will be under an Air Force general at Military Airlift Commmand Headquarters, and he will be dual hatted. The Air Force general will be dual hatted.

Chairman STENNIS. Senator Kasten, these three gentlemen I am sure are all willing to answer questions.

All right, proceed, Senator.

Senator KASTEN. Mr. Chairman, thank you.

MINE SWEEPERS

John, let me echo what I understand a number of the members of the committee have said, and that is congratulations to you on a terrific job. We all look forward to working with you in a number of different capacities in the future.

Each time that you have come before this subcommittee, we have talked about difficulties with mine sweepers, and I have some specific questions which I would like to address for the record with regard to mine sweepers concerning some of the problems we have had and some of the language we put in the bill last year.

I would like instead to ask you a broader question today. What is the Navy doing about the mine countermeasures issue as a whole? One of the areas in which a number of us are interested, and I have become more interested because of working with the mine sweepers, is the potential for real problems. It seems to me that we are not as far along the way with the whole mine countermeasures issue as we would like.

Do you agree with this assessment? Do you think that we are making an adequate effort overall in mine countermeasures? Where do you see us going in the big picture over the next couple of years?

Secretary LEHMAN. Well, I agree with your assessment that we have to look at this problem with a new set of cautions and a new emphasis, because we have had the luxury, essentially, of not having throughout the post-war period a major mining threat to our home waters.

SOVIET MINELAYING CAPABILITY

With the deployment now, however, of these modern Soviet attack submarines and, indeed, basing mining aircraft in Cuba and ready deployments that we must foresee in warfare will operate out of Cuba and Nicaragua, we do have a problem right here and now with the ability of Soviet submarines to lay mines, to deliver mines through a variety of means, that is one of the reasons that we now feel so strongly about home porting.

Our approach has been a combination of mine sweepers, of coastal mine sweepers, auxiliaries like the COOP program. Helicopter mine sweeping, which you saw in clearing Haiphong and the Suez Canal, is a very capable use of modern technology, but I think that it requires a new emphasis, and I think that Admiral Trost, having recently been the Commander of the Atlantic Fleet has gotten a number of things, new approaches, going. I would like to have him address the problem as well.

HELICOPTERS AS MINE SWEEPERS

Admiral TROST. Senator Kasten, you are absolutely correct that our mine countermeasure concerns are not borne out by as much activity and action as we would like. We have permitted our capability in that very vital area to decline because of a lack of a demonstrated threat over an extended period of time despite the fact that that threat truly exists, and we are well aware of it.

We permitted our World War II force of mine countermeasure ships to decline markedly, and we have only recently begun building replacement ships to give us that vital capability and to give us a capability to counter those modern mines.

We have, as you are undoubtedly aware, developed a capability to use helicopters as mine sweepers, and they are very effective. We have not built enough of them. We are proceeding to expand that force.

In view of our shortfall of small coastal and harbor-capable mine sweeping ships, we have taken a number of actions. We have been doing what is known as channel conditioning, finding out what is really there, what is a barrel, what is a discarded piece of junk, et cetera, so that if we do find ourselves in a situation where mines have been planted or are presumed to have been planted, we will know what we are looking at as we go down a channel or as we go down through waters that our ships have to traverse.

COOP PROGRAM

We have also been taking advantage of both the Coast Guard and Reserves to augment our very limited capability off our own shores and in our own home ports. We are taking advantage, for example, of a program known as COOP, which uses craft of opportunity. They may be fishing trawlers or older yard patrol craft which are fitted with the necessary gear to permit reservists to operate them as an effective counter to the threat in our port areas.

Senator KASTEN. The Secretary mentioned the new home porting effort. I supported it, as did the Congress, and it is being carried forward.

HOME PORTING ISSUE

How do you look at the home porting issue with regard to the mine countermeasure set of issues? It seems to me that if you are going to go back and check the rivers and the harbors, you have more to check, and you have more to map, and you have more to protect, and you have a wider problem.

On the other side, you can say that you cannot plug all ports up as easily, and maybe they could have just blocked one or two major portions. It seems to me that there are some plusses and minuses from a mine countermeasure point of view as we move toward the home porting.

Admiral TROST. As I know you are aware, there have been many who argue that we should not expand our homeporting capability because of the mine sweeping requirement which would accrue. That ignores the fact that the ports we are talking about would have to be kept open for commercial traffic even if there were no military units based there since these ports are necessary for the resupply of our own and allied forces overseas in a wartime or crisis situation.

So we have not really expanded our capability. What we have done for several of the new home ports is identify the requirement for these crafts of opportunity which I have mentioned and, later on, designated coastal mine sweepers will be based in those areas where they are required.

Senator KASTEN. Mr. Chairman, thank you. I have a couple of other questions which I will submit for the record.

Chairman STENNIS. All right, Senator. Without objection, they will be admitted into the record.

STATEMENT OF ADM. C.A.H. TROST, U.S. NAVY, CHIEF OF NAVAL OPERATIONS

BUDGET ISSUES

Chairman STENNIS. All right, Admiral Trost. You have been asked some questions. We want you to have an opportunity to cover any points you wish, make any suggestion you wish. Proceed in your own way.

Admiral TROST. Thank you, Mr. Chairman. I appreciate the opportunity to appear before your committee. I would, with your concurrence, in the interest of saving time like to submit both my detailed posture statement and the shorter summary statement which I prepared for this committee for the record.

Chairman STENNIS. Without objection, those items will be admitted to the record.

Admiral TROST. What I would like to do is make several brief statements which emphasize comments Secretary Lehman has made with regard to the budget.

First of all, I think past performance speaks for itself. We have demonstrated that we are good stewards of the taxpayers' dollars in meeting the Nation's needs for a strong Navy in support of national defense.

We do have a carefully structured budget submission which does take into account those requirements and recognizes that we do not drive the requirements. Our function is to meet requirements imposed by national need. I think we have done that quite well.

I would like to emphasize my approach and my point of view both as a member of the Joint Chiefs of Staff and as the senior uniformed member of the Navy. From the JCS point of view, General Kelly and I and our counterparts are faced with a number of issues. We have to look on a day-to-day basis at whether or not this country has the necessary military capability to meet a very real and growing threat to our Nation and to the free world as a whole. We do that. That is a problem of today, and that is a problem of the future. Our recommendations have to take into account the future.

We also have to be prepared to provide military advice for response to day-to-day crisis situations. We today have a navy tailored to meet the high threat of global war. We also have a navy which has as its principal goal deterrence of that war and control or deterrence of crisis situations as they arise around the world.

CARRIER BATTLE GROUP IN INDIAN OCEAN AREA

Let me use just one recent example which demonstrates that capability. We have today a carrier battle group operating in the Indian Ocean and spending most of its time in the North Arabian sea. That came about because of the increased threat to the free flow of oil and traffic through the vital Straits of Hormuz into and out of the Persian Gulf.

To meet that threat, we had to answer what to me is a fairly usual question: Where is the nearest battle group and how soon can you get it there? Well, the nearest battle group happened to be in the Western Pacific en route to the South China Sea. It was scrambled on very short notice and showed up in the Arabian Sea not too very long thereafter, fully ready to go.

Now, why? Simply because that was the flexible mobile military force available to national command authority. A force which had no political constraint on its operations or on its movement or on its presence and which nonetheless provided the latent capability if required. It was the only force simply because we did not have access to move our other forces.

The same rationale applies when all so often we are asked, "Where are the amphibious groups with their embarked Marines?" Because, if we are going to have to take a step, they can also be afloat in international waters with a potent capability if required, backed up by combatant forces, including land-based air forces when they can be based in an area, ready to operate.

I think that is an important lesson, and it is important to me as a service chief because it says that if we need this capability, we should recognize how we got it. We are ready today because we have been given the money to buy the assets that the country needs. The important thing is we are ready.

PEOPLE PROGRAMS

I would emphasize Secretary Lehman's emphasis on people. People make us ready, but people are a perishable product. We have had end strength constraints under which we have operated over the recent past which have not let us take all the people we have requested and apply them to the task at hand. We have put our priorities on the operational forces to the detriment of some fleet support and personnel support, such as medical. We need those people.

We also need to recognize that if we do not take care of our people in terms of pay, entitlement, recognition and good leadership, we are going to lose them, and they are going to be very, very hard to get back in a time of crisis.

SHIP OPERATIONS

We are also ready in terms of ship operations. You mentioned earlier the increase in mission capability in our tactical aircraft based at sea. That has been the result of good trained people, enough spare parts, and the proper leadership to apply the assets. We should not give up what we fought so hard to get.

SUSTAINABILITY OF FORCES

We are also criticized on occasion for lacking the sustainability of our forces. We can sustain them. The important thing is to look at where we are now as opposed to where we were just a decade ago in combat readiness. Today's policies say we must be able to fight a sustained war. We have been working for a number of years to build up our ammunition inventories to be able to do just that.

We have not gotten as far as we want to go for two very good reasons. One is fiscal constraint. The other is the fact that each year as we ramp up, those ramps have been challenged either as to our capability to do it or as to the desirability of proceeding too rapidly. So we have proceeded as rapidly as we have been permitted. I think we have done that quite effectively.

MODERNIZATION

Secretary Lehman mentioned modernization and touched specifically on the concerns expressed by some in Congress about modernization of aircraft. Our modernization program, which includes research and development, is critical to the future. We have to be able to stay abreast of the threat, and we have to look to the future so we maintain our technological edge. I think that is extremely important.

FORCE STRUCTURE

Another area I would like to stress is the force structure as it reflects the Navy's needs. You and the Secretary have discussed aircraft carriers. We need them. They are critical. We ought to be buying them in a logical fashion, which means we should take advantage of a trained, in place work force available to do the job, and we should recognize proven performance in saving money with the procurement practices that are espoused.

Now, why do we need the carriers? Secretary Lehman has touched on the numbers. If the Joint Chiefs came in to tell you the requirement, it would be far greater than the approved Navy requirement as a part of the 600-ship Navy. That greater requirement would reduce the risk if we had those ships, and all of us and our combatant commanders would be much more comfortable.

The fact is, we are not likely to get them because of affordability. We know that, but we should recognize that today's inventory has some old platforms. As an example, we recently had a group visit the carrier *Coral Sea*, one of our two oldest aircraft carriers. That group included an official in the Texas State Prison System who, after visiting our ship, a first-line combatant, noted that the people on that ship live less well than the people confined in the Texas State Prison System, and he thought their living conditions should be upgraded.

We certainly owe the same to people that we send out for 6, 7, 8 months at a time to meet national military requirements. So we have to replace those old platforms.

We also have to recognize that they decline in capability, and there comes a time when that capability can no longer be put into a hull that is constrained by age and size; therefore, we need to upgrade the capability.

AEGIS PLATFORMS

I would like to note also the need for the improved capability represented by the AEGIS platforms, both the cruisers and the *Arleigh Burke* class of destroyer, and the accompanying supply ships that are so vital to keeping our battle groups operational at sea. We need them because they are necessary to meet today's and tomorrow's threat and do the job we are tasked to do.

SSN-21

Finally, I should touch on the SSN–21. We have seen a lot of publicity lately which, like so much of what we have read in the media, is attributed to defense analysts who have no name. I would like to make a statement as someone who has a name and to whom accountability and responsibility accrue along with the claim of expertise.

We need those submarines. They are the result of a lot of years of study and analysis and consideration by people with the operational background to know what is needed to meet the threat. They will and can be ready. They should continue to be supported by the Congress, and I would urge that support.

Along with all these ships, we have to keep in mind that we need the necessary physical plant support ashore, both in the new home ports and in replacing obsolescent and obsolete facilities in existing ports if we are to continue to do the job of maintaining a ready force.

I think that covers the issues I feel should be emphasized, Mr. Chairman, and I will be prepared for any questions.

[The prepared statements of Admiral Trost follow:]

PREPARED STATEMENT OF ADMIRAL C. A. H. TROST

CHIEF OF NAVAL OPERATIONS

Mr. Chairman, I am pleased and extremely proud to appear before you and the distinguished members of this committee to represent the United States Navy. My experience to date as Chief of Naval Operations confirms my observations as the Atlantic Fleet Commander that the state of the Navy is sound. The Navy is demonstrably more ready than ever to meet national security objectives and will remain so for the near term. We continue to reap benefits of earlier decisions to strengthen our national defense -- with delivery of tremendously capable ships, submarines, and aircraft, modernization of existing weapons systems, increased munitions and spare part inventories, and, most importantly, unparalleled performance of Navy personnel who are the keystone of success. Career professionals together with young men and women fresh out of high school demonstrate a standard of excellence that far exceeds the norm of American society. These Navy personnel routinely evince a selfless dedication to service and strength of character which enables them to meet the challenging requirements of national commitment including extended at-sea periods, the stress of high risk assignments and duty as representatives of the United States overseas. They have my admiration and complete support.

The increased capabilities of the Navy would not have been possible without a strong partnership with Congress. In the final analysis, Congress responded determinedly to a national consensus with programs to turn around a declining naval force. The Navy responded with steady improvement in employment of resources, providing coherent programs for protecting our investments, development of a more effective training structure, and streamlining organization and administration functions while simultaneously improving responsiveness to national taskings and operational commitments. Sustaining these material gains in capabilities, readiness, and performance is my highest priority.

The global scope of international realities and requirements of American national security demand a sustained, consistent commitment to maritime power. The benefits of maritime power are evident in the daily operations of naval forces supporting and protecting American interests worldwide. U.S. Navy forces transit, exercise, and operate throughout the world's oceans, constantly serving notice to would-be aggressors that the U.S. remains committed to freedom of the seas and is able to protect that freedom in ocean areas vital to its national interests.

Last year, as they have for the past 26 years, strategic ballistic missile submarines conducted unseen patrols as the preeminent deterrent against nuclear war. When called upon as peaceful ambassadors, Navy forces made historic visits to numerous countries throughout the world including the People's Republic of China, supporting important objectives of U.S. foreign policy. In the crisis-torn Persian Gulf, Navy destroyers regularly ensure safety of American merchantmen involved in day-to-day commerce that depends on freedom of the seas. When force was required, carrier battle groups displayed U.S. resolve by their measured blow to the Libyan Government: a response that sent a clear message of U.S. determination to stem the rising tide of international terrorism.

The insistent realities of Soviet power make it imprudent to accept a diminished emphasis on national defense and maritime superiority. The Soviet Union continues to expand its ability to threaten U.S. allies and our extended security through an inexorable growth in military capability, particularly an increasingly capable, globally-positioned Navy. When the world's predominant land power continues to develop an impressive maritime capability, able to contest control of an expanding portion of the world's oceans, we, as an island nation and leader of a maritime alliance structure, must be concerned and responsive.

At the beginning of this decade, the Administration and Congress made a significant commitment to support a well developed and strategically sound building plan, designed and prepared to meet the military threat of the free world's major adversary. The American people, through Congressional action, amassed a significant capital investment in a strengthened and ready United States Navy. Historical examples, however, indicate that after every successful rebuilding program, there has followed a major reduction in funding which would not sustain the readiness attained by that effort. Recoupment from these retrenchment periods, unfortunately, required even greater expenditures. The extraordinary costs of resuscitating a declining Navy only six years ago should give sufficient pause to consider the consequence of allowing such a decline ever to occur again. By failing to protect recent investments in people and equipment, we would create problems that take time as well as huge amounts of money to solve. No amount of money can replace experienced personnel shortfalls in sufficient time to meet a peacetime, low intensity crisis --let alone a major all-out war. Underfunded maintenance actions and shortfalls in material support of a decade ago still hamper engineering performance of older ships. Their repair and modernization costs are now unduly high since manufacturing companies require duplicative tooling to meet the needs of both old and new technology and machinery. Should we fail to sustain the readiness achieved through our earlier investment, the results may not be visible for some time; but we shouldn't deceive ourselves about the inevitable consequences. National interests and tasking will continue to require timely, responsive, positive action by ready Navy forces. A lack of sufficient funding to sustain a ready Navy will impact on our ability to meet such taskings and properly support national interests.

Because the state of the Navy is sound, we can sustain recent accomplishments and meet future challenges with very modest growth. The Navy budget requests the minimum level of resources necessary to maintain our momentum. It reflects two overriding priorities: safeguarding total naval capability, readiness and performance; and as the most important factor in this objective, ensuring that we continue to attract and retain those quality people so necessary to our continuing success.

My intention in this report is to address the essential and continued requirement for U.S. maritime superiority. A review of the Navy's performance over the past year will be presented in an effort to set a baseline readiness posture from which measurement standards can be obtained in relation to the current and pro-jected threat, national security objectives, force capabilities and force requirements. I will describe the strength and capability of the maritime component of the nation's defense, pointing in particular to the critical role of those seagoing professionals who transform budgetary appropriations into seapower, and note the extent of integration in training and operations with sister Services and allies. I stand accountable for management of resources entrusted to me and will assess challenges demanding enhanced maritime capability to support national security objectives. In conclusion, I will highlight the 1988-89 Navy budget request which is derived from national strategic imperatives and is critical to safeguarding Navy's gains in capabilities, readiness, and sustainability.

I hope that my successor, in his first report to the Congress, will find that he has taken the helm of as strong a Navy as I have, and will be able to provide as upbeat an assessment of the state of the Navy as I am about to give you. Whether or not he will depends in great part upon continued Congressional understanding of and appreciation for the imperatives of maritime superiority in our military strategy.

THE NEED FOR MARITIME POWER

At the commissioning of the aircraft carrier Theodore Roosevelt this past October, Secretary of Defense Weinberger emphasized maritime superiority as a prerequisite for execution of U.S. national military strategy. This judgement has been the primary factor in the rebuilding of American military strength. It embodies a central reality of the United States' position in an international system where vital interests of the United States extend into every region where even the smallest and most innocent presence of things American is at considerable risk. In our modern life we are confronted with a spectrum of violence that ranges from the real to the potential: from isolated terrorist bombings and kidnappings, to Communist insurrections in friendly countries, and to the threat of all-out Soviet assaults in Europe and Asia. Maritime superiority is the only reasonable and logical course for an island superpower responsible for the well-being of a truly global maritime alliance. Without adequate maritime power, we face two potentially disastrous consequences. First, our economy and way of life could be seriously and adversely altered in a world in which the U.S. has increasing involvement and decreasing control. Second, and more important, we would endanger the freedom and the lives of our citizens and allies because we could no longer execute our national strategy in the face of growing Soviet power and other threats to peace.

The American imperative for maritime power begins as a fundamental requirement for an island nation, dependent on world commerce, to have free use of the world's oceans. It is compounded by the emergence of the United States as a world power, with world-wide interests and alliance commitments to nations which are themselves islands or located in strategically exposed positions. To such a nation and such an alliance, freedom of the seas is a prerequisite for economic and political survival.

Freedom of the seas is not a gift nor is it built into any international Bill of Rights. This crucial freedom is won largely through naval presence or engagements. In a perfect world based on the rule of law, the Western Alliance could rest assured that this freedom, once secured, would be inviolable. In a turbulent international arena, however, we must be ready, with resolve, to enforce claims for free movement on the world's seas and oceans with capable naval power applied where needed.

American involvement and interests overseas have grown to remarkable proportions. Only a generation ago, most middle-class Americans could perhaps justify isolationist instincts. In spite of U.S. preeminence in world politics, a majority of Americans worked for companies with no international ties, never travelled abroad, and relied exclusively on local manufacturers. Today we live in a world of unparalleled economic integration. U.S. corporations operate freely across international boundaries. U.S. investment overseas has increased by a factor of 10 in one generation with a substantial portion representing middle class America. Individual travel overseas is increasingly common and has more than doubled in the last eight years. U.S. trade with the rest of the world has increased 700% over the last 12 years and continues to spiral upward. The seaborne component of this trade has grown dramatically in recent years, exceeding $300 billion a year. In short, the prophets of the 1960s who foresaw the economic interdependence of the Western world were proven correct in the 1980s. Trade, travel, communications, and a host of other factors -- as well as alliance commitments and military necessity -- compel us to look overseas. The world's democracies and free enterprise economies are knit together in practical terms by seapower.

The critical nature of trans-oceanic connections among allies is magnified in time of crisis or war. Production of most major combat systems for the free world depends on the global factory and relies on sea lines of communication. For example, if foreign sources were cut off, M-1 tank production would stop, critical subsystems for the F-16 would be delayed, and semi-conductors for a host of space programs would be unavailable. The Western "Arsenal of Democracy" is spread among scores of countries producing raw materials or high-tech components, all either united -- or separated -- by wide oceans. As we learned in two world wars, the Korean Conflict, and Vietnam, our ability to fight a sustained conflict overseas is dependent on our ability to use the high seas for critical logistic and warfighting support.

National Security Strategy

These inescapable geopolitical realities underlie a U.S. national security strategy supported by maritime strategy which is, in essence, a professional judgement of how maritime power can best support national interests. Key elements of national military strategy -- deterrence, forward defense, and alliance solidarity --each require maritime power.

Deterrence of war has been the cornerstone of American policy since the dawn of the nuclear age, but it has evolved into a concept much broader than nuclear deterrence alone. While the stronger, more powerful aggressor requires a stronger deterrence, a viable national security strategy must be based upon capabilities and perceived resolve to inflict unacceptable damage upon any aggressor, at any level across the spectrum of conflict, anywhere on the globe that U.S. interests are threatened. The Navy contributes essential military capabilities to that deterrent equation. At one extreme, the strategic submarine force, the preeminent and most survivable element of our strategic nuclear triad, conducts unseen deterrence patrols and is ready to retaliate instantly should the U.S. be subjected to an attempted disarming first strike. On the other end of the spectrum, Navy special operation forces, integrated into regular deploying forces and capable of self-sustaining unconventional warfare in all operational mediums, are transportable world-wide to deter and counter lesser threats to international stability. Naval forces provide a range of options (Figure 1) available to bolster deterrence through their credibility, flexibility, and mobility. Potential aggressors must take note of a fighting force which can apply force precisely and suddenly, independent of precarious supply lines, and independent of the need to land forces and establish or use foreign bases or overflight rights. Naval forces enjoy the unique advantage of being able to signal commitment and intent -- and if necessary, menace -- without violating sovereignty, and once the need is past, depart without signalling retreat.

Forward defense has long been a pillar of U.S. policy and a cornerstone of naval deployments since John Paul Jones in USS Bon Homme Richard engaged HMS Serapis off the English Coast in 1779. Forward defense resonates with America's desire for extended security and takes into account the location of friends on the peripheries of our alliance systems, in addition to the exposed states of Hawaii and Alaska and U.S. territories of Puerto Rico and Guam. Not only is a forward defense posture designed to provide effectively for the physical protection of U.S. security and interests, but it also places military forces in strategically desirable locations to bolster alliance cohesion in times of crisis, to most effectively safeguard vital sea lanes, and support forward ground operations in time of war.

A glance at the globe suggests why alliance solidarity is the third pillar of the U.S. defense posture. Our principal antagonist occupies the central portion of the Eurasian landmass, and the preponderance of its threatened neighbors need to seek the shelter of either alliance or special relationships with the United States. Maritime power is the glue of alliance solidarity. We have formal multilateral or bilateral agreements with 43 countries, and all but a few of them are adjacent to the world's oceans. They require the assurance that American strength will be there when necessary. For a majority, the most visible manifestations of that strength are the personnel, ships, submarines, and aircraft of our forward-deployed Sixth and Seventh Fleets. Further, we need allies and count on their military forces in our calculation of total force necessary to balance the East-West equation. We plan for and fully integrate alliance forces in the overall defense posture.

These elements of national strategy are interrelated and mutually supportive, and are more in evidence today than ever before. America's global presence fortifies the confidence and unity of our allies, a key component of deterrence. It strengthens the Western economic and military position against

NAVAL FORCE OPTIONS

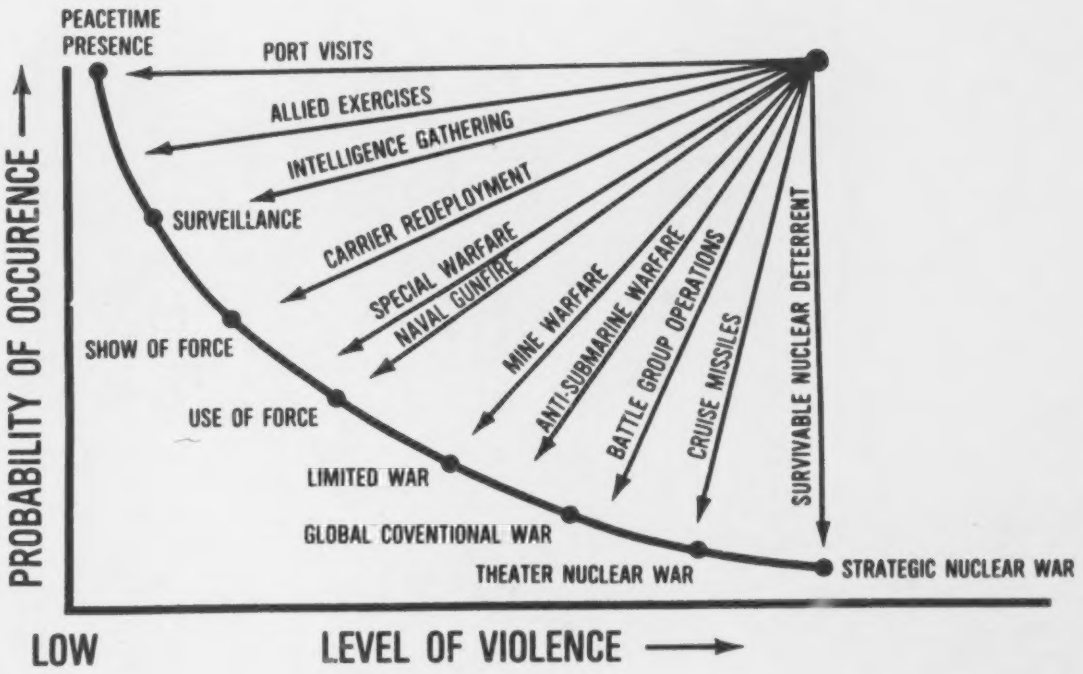

PEACETIME PRESENCE
PORT VISITS
ALLIED EXERCISES
INTELLIGENCE GATHERING
SURVEILLANCE
CARRIER REDEPLOYMENT
SPECIAL WARFARE
NAVAL GUNFIRE
SHOW OF FORCE
MINE WARFARE
ANTI-SUBMARINE WARFARE
BATTLE GROUP OPERATIONS
CRUISE MISSILES
SURVIVABLE NUCLEAR DETERRENT
USE OF FORCE
LIMITED WAR
GLOBAL COVENTIONAL WAR
THEATER NUCLEAR WAR
STRATEGIC NUCLEAR WAR
PROBABILITY OF OCCURENCE
LOW
LEVEL OF VIOLENCE

FIGURE 1

the threat, as far forward as possible. In sum, aggression by potential adversaries is deterred by a strong, unified, and confident Western alliance willing to defend its way of life. The degree of success of this combination over the last 40 years is attested to by the absence of general war and the containment of regional conflicts. With few exceptions, those countries free to seek economic and social benefits available only in the Western Alliance after World War II, were successfully protected from further encroachment by successful application of thisdefense strategy.

Our Navy has directed much recent attention to defining the maritime component of our national military strategy. For many years, U.S. maritime strategy was very much like the British Constitution -- unwritten but thoroughly understood by those who had to practice it. Today, there is a written maritime strategy representing a consensus of professional naval judgment on how best to implement the maritime aspects of U.S. national security. It is not revolutionary, because it largely codifies an existing body of thought, and is flexible enough to adapt to changing realities as its unwritten predecessor did. It is extremely useful in helping us think about how best to deter, or if necessary fight, a major war, and how to ensure that Navy programs match strategic imperatives.

The Maritime Strategy is, using Secretary Weinberger's useful construct, a classic "competitive strategy", carefully exploiting Soviet weaknesses and emphasizing American strengths. It contributes to national security strategy by strengthening deterrence, forcing the Soviet Union to face a most unpalatable and deterring prospect: that any conventional war they initiate with the West could be protracted, global, and fought by a unified maritime alliance in places and ways not necessarily of their choosing. Its forward posture is the most strategically sound concept to ensure that our allies have tangible support, our lines of reinforcement and resupply are not challenged, our own coasts are not threatened, and technological advantages are best employed. It allows the full weight of Western capability to face the Soviets and removes their preferred option of a short, single front war. Soviet spokesmen have provided it the ultimate compliment by proclaiming in Izvestia that "it is hardly possible to imagine anything worse."

Naval strategic thinking remains supportive of the national military strategy and continues to provide the foundation for naval operations and programming objectives. By continually examining the maritime strategy and challenging its assumptions, we will continue to ensure its vitality and utility.

The Soviet Threat

America's location, global interests and interdependent economy would demand that the U.S. attain maritime superiority irrespective of the name or nature of the likely antagonist. However, our national military strategy clearly identifies the Soviet Union as the principal global adversary. For years this huge continental power has been amassing military forces far out of proportion to what we would consider reasonable for self-defense. Largely self-contained, it operates on interior lines of communication which minimize the need for intercourse with other countries. Soviet influence is not based on its economy or ability to produce goods nor does it provide a market place for the world. Consequently, it does not need a navy to be secure within its borders, but it nonetheless continues to build a large and capable navy and power projection forces.

The Soviet Navy is out on the oceans daily, attempting to influence the policies of any government with maritime interests. It poses a consistent and real threat to the stability of the free world. Soviet naval growth and long-term fleet exercise trends indicate a capability and readiness to expand the area of operations within which they would attack vital free-world maritime interests, including seaborne commerce and military resupply, in time of crisis or war. This globally deployed force, now with over 500 ships in the Pacific theater alone, is capable of mounting effective mining and cruise missile opera-tions against our ports and shores. In Admiral Gorshkov's early tenure, Soviet operating areas were measured in tens of miles. Today these areas encompass the globe, with particularly strong capacity to conduct intensive combat actions on a combined arms basis extending at least 1200-2000 miles from the Soviet homeland. This capability is particularly worrisome when superimposed on a map of the world (Figure 2), which shows our own shorelines as well as many of our allies within the shadows of Soviet naval operating areas.

The ability to project conventional maritime power deep into the world's oceans is only one manifestation of a balanced and growing Soviet Navy. The Soviet nuclear strategic submarine force patrols the open ocean areas of the broad Atlantic and Pacific Basins and the protected bastion areas closer to their shores. This force constitutes a significant portion of the Soviet nuclear strategic reserve. On the other end of the spectrum, the Soviets recognize and exploit a navy's utility in peacetime. In clear emulation of successful U.S. policy, the Soviets have maintained international visibility with continuous naval force presence in the Mediterranean Sea, Indian Ocean, South China Sea, and South Atlantic. They have developed a major operating base in Vietnam and regular access to naval support from Cuba, Syria, Libya, Angola, Guinea, Aden, Ethiopia, Mozambique, and the Seychelles, which are well positioned astride key world wide maritime sea lines of communication. This extensive network enhances the Soviet fleets' ability to influence events distant from the Soviet homeland.

Several Soviet naval developments are particularly challenging to U.S. maritime superiority:

o The mammoth force of Soviet attack submarines now includes several classes of nuclear ships which represent major gains in acoustic quieting and combat system sophistication. The Mike, Sierra, and Akula classes would be more difficult foes in wartime because of improvements in their quality and weapons delivery capability. The Soviets devote the lion's share of their shipbuilding budget to construction and improvement of submarine forces. Continued advances in the quality of this force lead me to rank anti-submarine warfare (ASW) as the naval mission area of greatest concern over the

SOVIET NAVAL OPERATIONS

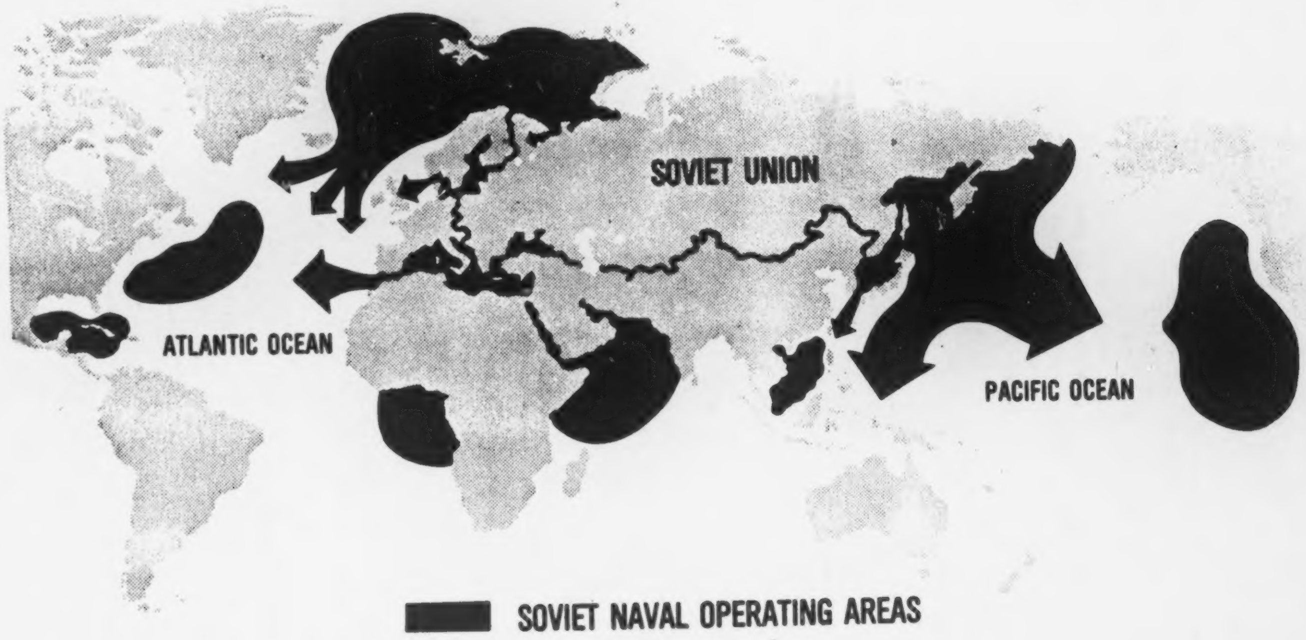

SOVIET UNION
ATLANTIC OCEAN
PACIFIC OCEAN
■ SOVIET NAVAL OPERATING AREAS

FIGURE 2

next several years. The U.S. lead in ASW is substantial but narrowing, and we must give increased priority to programs which improve our ability to detect and successfully prosecute these more sophisticated submarines. Failure to maintain a U.S. advantage in ASW will threaten the entire U.S. defense strategy by reducing our capacity to project power on Soviet flanks and making more vulnerable allied battle forces and sea lanes to submarine attack.

o The Soviets have recognized the need to improve their own anti-submarine warfare capability, and have embarked on an aggressive program to close the gap in submarine superiority that the U.S. submarine force has held since World War II. ASW has surfaced as a major Soviet warfare area with extensive national research and development priorities. Soviet tactical development and training includes global exercises in forward areas off the U.S. East Coast, in the mid-Pacific, and in the Gulf of Alaska. Their aggressive efforts are beginning to yield significant advances.

o The Soviet Union has developed a virtual copy of the U.S. Tomahawk cruise missile, the SS-NX-21, which could be fitted aboard a variety of Soviet submarines to give them the capability to attack U.S. and allied seaboards with nuclear-tipped cruise missiles. A larger, faster long-range cruise missile, the SS-NX-24, is already being designed to expand this capability.

o The Soviet land-based air force is designed to counter U.S. forward defenses and will obtain a new dimension with introduction of a Soviet-type AWACS. The Soviets are developing the capabilities, tactics and procedures to operate with naval units and control fighter and attack aircraft well beyond current effective operational ranges. Coupled with improvements in all classes of Soviet Naval Aviation, this provides an increasingly formidable ability to wage war over the sea.

o Leonid Brezhnev, the first Soviet large-deck aircraft carrier, potentially capable of accommodating modern fixed wing aviation, has now been launched. This ship and others like it will be available to the Soviets for that panoply of national military missions long performed by U.S. and allied aircraft carriers, suggesting by imitation the effectiveness of our own investment in sea-based air power.

In years past, a summary description of the large but less-capable Soviet Navy would probably note that "there is a certain quality to quantity". Although technically inferior, the sheer number of Soviet naval air, surface, and submarine platforms posed a considerable threat. Now, however, they have added quality to this quantity and are testing our ability to maintain superiority in all naval mission areas.

The Soviet threat is very real to us in the Navy because we see first-hand the decks of new Soviet cruisers bristling with armaments from bow to stern. We track Soviet submarines trailing our warships and escort Soviet planes flying near our battle-groups on a daily basis. Thus, we know who they are and what they are: formidable and steadily improving. The Soviet task of denying western use of the seas is incalculably easier than our imperative of maintaining a maritime advantage. Their ability to succeed is clearly within the realm of possibility if we do not sustain our margin of superiority.

The International Environment

U.S. military strategy clearly identifies the Soviet Union as our primary adversary, and the strength of our deterrent makes global war against them hopefully only a remote possibility. Fortunately, the same naval forces that deter the Soviets are equally effective through their mobility, flexibility and logistic independence in an international environment marked by low-level, high-probability crisis and conflict situations. We must continue to balance our forces to preserve the ability to operate effectively in an environment characterized by international terrorism (state sponsored and otherwise) and regional conflicts bred of deep-seated religious, territorial, or economic disputes. These conflicts rarely affect the direct physical security of the United States but do have a profound impact on regional stability, our economic well-being and that of our trading partners, and the security of our interests, assets, and personnel overseas.

Forward, mobile, and able to apply pressure selectively when and where needed, naval forces have acquired the bulk of American experience in dealing with situations located between peace and global war on the spectrum of conflict. It bears repeating that every president, regardless of party, has regularly selected a naval response to these crises and conflicts. While scholars have only lately become aware of the concept of "low intensity conflict," the Navy and Marine Corps have been operating in this arena since President Jefferson dispatched the fleet to deal with the Barbary pirates in 1802.

The need to deter, counter, or control increasing levels of international violence grows correspondingly with the aggregate level of U.S. international involvement and interests, and with the potential lethality of the situation. There are governments of fanatics, either inspired by the Soviets or in many cases at least equipped by them, whose national policy is to destroy what they consider "The Establishment" -- the U.S. and our allies. There have always been such renegade regimes, but the differences today are the access they have to weapon technology nearly as good as our own, and their lack of inhibition to use it. Lethality of conflict in the Third World increases as weapons available to belligerents increase in quality and number. Our forward deployed forces now must operate in a world in which 50 small and medium powers possess anti-ship cruise missiles, 24 have diesel attack submarines, and 99 operate jet tactical aircraft. This proliferation of advanced weapons illustrates the requirement to respond to Third World contingencies with high-quality forces capable of controlling or countering increasingly sophisticated and high-technology violence. To the scholar, this may be low intensity conflict, but to forces on the scene, these operations are dangerous and intense.

International barbaric acts add a new dimension to world violence and increase the requirement to have military forces on location ready to preempt or respond. The salutary effects of last year's strike against Libyan state-supported terrorism are heartening, but we cannot rule out the possibility that other military action may be necessary in the future. The problem is clearly global and naval forces are likely to be on the scene.

Another form of terror visited on the U.S. is inflicted by drug traffickers found predominantly in the Caribbean Basin, many of whom are directly linked to subversive and revolutionary political elements in Latin America. All the Western Hemisphere navies have a united concern to rid the region of this menace, and the U.S. Navy has devoted a substantial number of ship steaming days and aircraft flying hours to the interdiction of drug traffic. Although the Navy is not designed or trained expressly for this role, we can and do contribute, and will do what the nation requires of us.

There is no indication that Navy involvement in Third World conflict will abate. Rather, our forward-deployed fleets must increasingly anticipate the violent challenges and confrontation posed by a chaotic and dangerous world.

Seapower and National Defense

The world geopolitical situation, U.S. interests, and threats to those interests create an abiding need for American seapower. We are not a fortress, but rather an island nation, dependent upon commerce with other countries to support an interdependent industrial base and a world market, and knit together with our allies by maritime links. Sea lines of communications (SLOCs) remain major arteries of our life's blood. It may be easy for the American public to overlook the need for maritime superiority in peacetime, but in time of war or regional conflict, maritime superiority is mandatory.

Geography presents the United States with a two-edged sword. The waters washing American shores serve as either a link or barrier to the rest of the world. With maritime superiority, we have the ability to protect our interests and security in peacetime through forward-deployed ships, submarines, and aircraft; in case of war, we have the freedom to encircle, outflank, outlast our enemies, and mobilize our warfighting potential while fighting on our terms in our choice of locations. Without maritime superiority, these same oceans provide no obstacle to challenges from enemy maritime forces -- requiring our troops and allies overseas to win with the forces on hand, surrender, or resort to nuclear escalation. Twice in this century an enemy's sea power has brought war home to our shores. In 1915, the sinking of the liner Lusitania shook this country out of its reverie. In 1942, Americans could look seaward and see the fires of ships burning from German submarine attacks. To avoid such a debacle in the future, we need to maintain a ready, capable Navy, which can bring to bear against any problem -- or against several problems at once -- sufficient force to carry out our national strategy of deterrence, forward presence, and support of our allies.

We have learned these lessons in major war and we see it almost continually in the smaller regional conflicts of today's dangerous peacetime world. The need for maritime superiority is clear. The U.S. is more deeply enmeshed in global affairs than ever before, and rightly so. Those who threaten international stability continue to amass power and spread their influence about the globe. More than ever before, the power that holds the Free World together -- U.S. maritime power and resolve -- must be sustained.

STATE OF THE NAVY TODAY: CAPABLE, READY, ON COURSE

Today's Navy is the strong, capable instrument of maritime power the United States requires, more ready than ever to do what is asked of us in peace, crisis, or war. The nation's investment in its Navy has produced concrete results and substantial improvements in all aspects of naval capability, as evident by a variety of indicators. One such indicator is the extraordinarily positive personal observations of those with first-hand experience with today's fleet, ranging from uniformed Navy leadership to a host of outside observers. A more quantifiable set of indicators is the measurement of the basic components or inputs of total military capability: high unit readiness levels; increasing sustainability indices; a force structure with new, more sophisticated ships and airplanes; and continuing modernization of existing forces. A third and perhaps most telling indicator is the sustained operational performance of naval forces worldwide in routine deployments, exercises, and crises. Taken together, these various measures of excellence point to a Navy today which is an impressive force in readiness: underway and on a steady course of quality and professionalism.

Observations

Perhaps because of my recent experience "on the waterfront" as a Fleet Commander-in-Chief, I place great faith in the value of first-hand observation as an indicator of the quality of our forces. While certainly a subjective assessment, this is the only way of evaluating all-important intangibles: pride, enthusiasm, dedication, a sense of purpose, and other critical components of warfighting readiness. My personal observation, reinforced by those of other Navy commanders and commanding officers, is that we have the highest-quality force in recent memory.

Without question, the key ingredient is the quality of our people. Ships and aircraft squadrons are manned by the most committed group of naval professionals that I have seen in my more than 37 years of service. I am continually impressed by the motivation, dedication, and consummate professionalism of even our most junior sailors. I am proud of the enthusiasm, sense of purpose, and commitment to their duties which they demonstrate day after day in demanding operations, under arduous circumstances, working incredibly long hours, and often far from home. I am pleased to report that the focus in our ships and aircraft squadrons today is on warfighting: on strategy, tactical proficiency, and mastery of the complex equipment we operate and maintain. In short, in my personal observation, the intangibles tell me we are ready to fight and win.

I extend a standing invitation to the members of Congress and your staffs to visit the fleet and see for yourselves the quality of our force and of the young people who have volunteered to serve in the Navy. Observe both their uncommon dedication and the technical challenges and arduous duty facing them. I know of no better way to convince you that Congress and the American people have more than gotten their money's worth from their investment of the past few years, and that this accomplishment must be sustained.

Components of Naval Capability

More quantifiable measurements of maritime power also show a strong Navy ready to go in harm's way. One such set of indicators is an assessment of the four basic components or "pillars" of naval capability. First, each ship, submarine, and aircraft must receive personnel, training, and maintenance necessary to ensure it is able to perform all tasks and missions for which it was designed (Readiness). Second, the Navy as a whole must possess the proper numbers and mix of units with the necessary design capabilities to meet the threat and carry out theater requirements, campaign plans and battle force employment (Force Structure). Third, these units must continually be modernized with up-to-date weapons systems and technical sophistication to match the projected threat, and the Navy must have an adequate program of research and development to maintain our technological edge (Modernization). Fourth, we must have adequate weapons inventories and logistics support to provide the staying power to wage protracted war (Sustainability). These indicators have been uniformly positive, although we are seeing the beginning of downward trends in several areas as funding has leveled off or decreased.

Overall unit readiness levels are at an all-time high, as are the functional components of unit readiness. Personnel readiness indicators, a key factor in overall readiness, measure the quantity and qualifications of trained personnel to fill the variety of specialized needs of our ships and aircraft squadrons to their warfighting limits. Personnel readiness trends generally continued to improve through last fiscal year. Since 1981, there has generally been a steady increase in the percentage of operational units reporting in the top two categories of personnel readiness except where communities have reached maximum levels (Figure 3). The one exception is aviation squadron personnel which declined somewhat during the last quarter of the fiscal year due to aircrew shortages. Cumulative fleet personnel readiness is at an all-time high but clearly bears close watching to preserve our gains. Endstrength requirements must be met. This past year, Congress authorized half of what was required to adequately man the new ships and aircraft squadrons previously purchased.

Other key components of overall readiness, ship equipment operability and aircraft availability, also continue to improve. Five years ago, less than half our surface ships were free of equipment casualties which materially affected their operational capability. Fleet equipment operability has improved annually since then, to the point that 71 percent of our ships have no material problems affecting the performance of their primary missions. The naval air arm has also shown steady and consistent annual improvements since 1982, increasing by 42 percent its number of fully-mission capable aircraft.

PERSONNEL READINESS IMPROVEMENTS

OPERATIONAL UNITS IN TOP TWO CATEGORIES

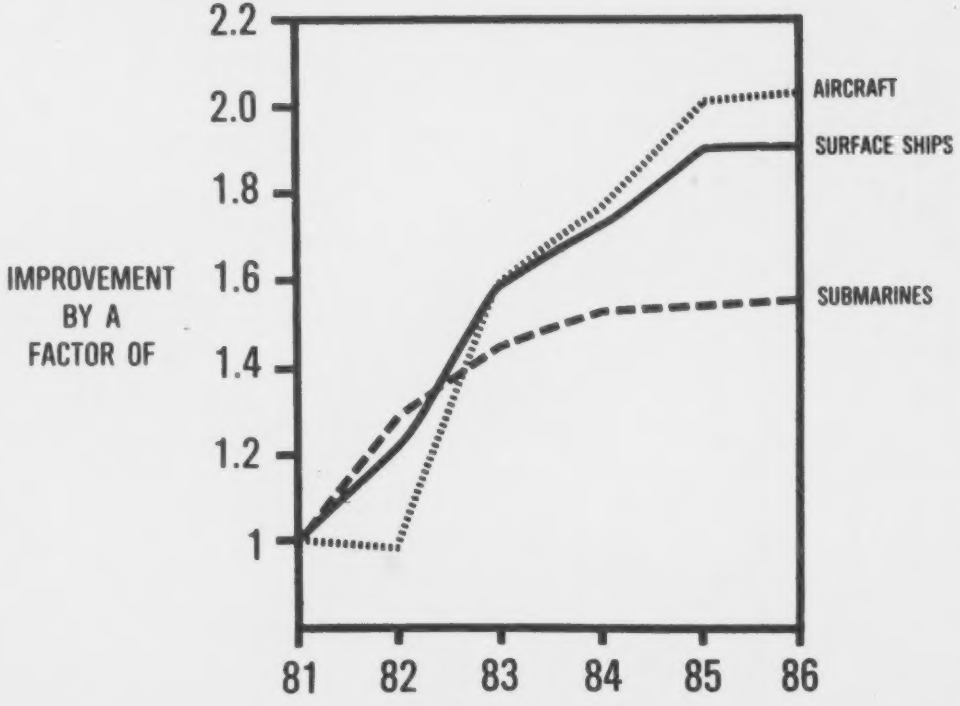


FIGURE 3

From October 1981 through the end of last fiscal year, overall unit readiness ratings improved steadily and significantly for all Navy warfare communities. This indicates that our ships and squadrons have improved markedly in all the input components which contribute to determining a unit's ability to fight to the limits of its design capability across all warfare areas. It is a sobering fact, however, that readiness gains take years to achieve but only months to lose, and require specific attention every year.

A most visible indicator of the fleet's increasing capabilities is the record of ship commissionings and introduction of new and more sophisticated weapons platforms. We have seen planned growth in force structure, both numerically and qualitatively. This growth capitalizes on steady Congressional funding and production efficiencies, and on technological progress from past investments in research and development through the employment of now-proven technical accomplishments. We are achieving a balanced mix of forces to meet the threat and support theater requirements from peacetime presence to global war. As of the first of January 1987, we reached a total of 555 commissioned ships. This force level has grown from a low of 479 in 1980, and funds have been appropriated and authorized to support attainment of the 600-ship goal by 1989.

Existing inventories of ships and aircraft have become increasingly capable through a wide range of fleet modernization programs to keep systems current with evolving technology and threats. ASW has witnessed systems upgrading, through installation on submarines, surface ships, and aircraft of improved dectection and processing systems better able to prosecute enemy submarines. The Tomahawk cruise missile, now installed in 33 ships and submarines, has added a revolutionary long range strike capability against land or sea targets. Major improvements in anti-air warfare have also been effected with the installation of the New Threat Upgrade in selected pre-Aegis cruisers and destroyers providing greatly enhanced sensor, control and engagement systems.

Positive trends are also evident in the sustainability component of total naval capability, as previous investment in ordnance stocks continues to pay off. Our magazines now stock 22 percent more ammunition than they did in 1984 and our bins are beginning to fill rapidly as Figure 4 shows. Building up our stocks of both "high tech" and "low tech" weapons will remain one of my major priorities.

Naval Operations 1986

Unquestionably the most telling indicators of maritime power are operations at sea. Deployments, exercises, and combat operations show in a very real sense naval capabilities that input measures of maritime power -- unit readiness levels, force structure, modernization and sustainabilities -- only suggest. In 1986, naval operations were again proof of a superb Navy that was able to respond promptly and with the desired effect, in conflict and in peace.

One of the Navy's most important contributions to peacekeeping was performed without fanfare in the depths of the

ORDNANCE SUSTAINABILITY

INCREASE IN STOCKS

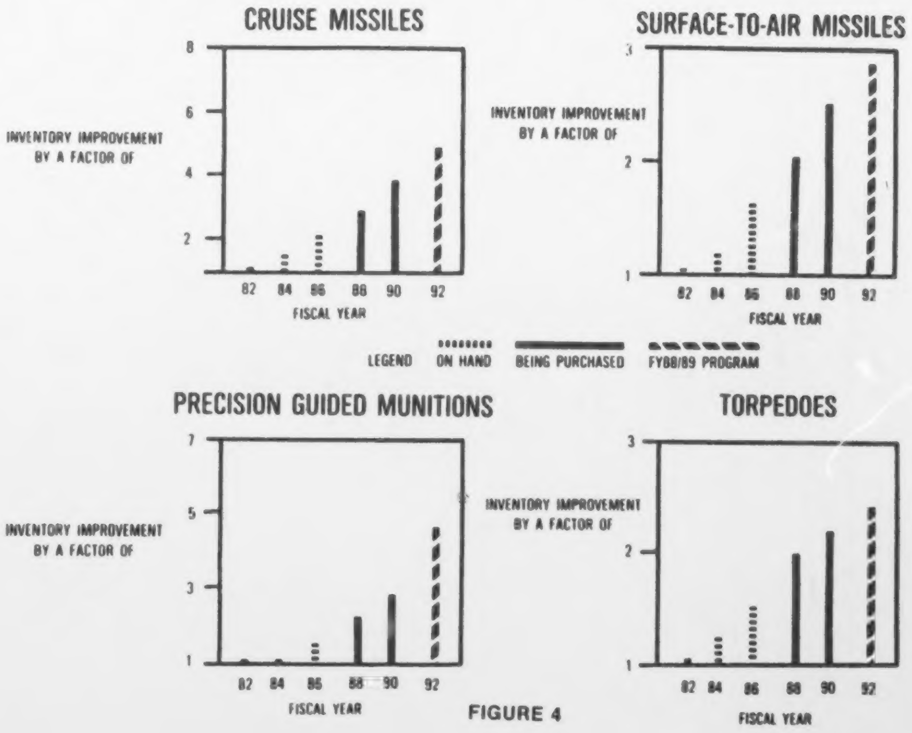


FIGURE 4

world's oceans. Ballistic missile submarines contribute about 50 percent of the warheads in the U.S. nuclear strategic arsenal, providing an invulnerable retaliatory capability essential to the nation's deterrent. This most survivable and stabilizing leg of the strategic nuclear triad is a stunning example of military professionalism and cost effectiveness, absorbing less than 10 percent of the Navy's budget and 3 percent of our sailors. This cost includes construction, operation, modernization, training and support of the entire strategic submarine force, which constitutes one of the best defense bargains this nation has ever made. The new Trident (Ohio class) submarines are proving to be the most effective warships of their kind in the world. They are quieter, faster and carry more firepower than our older ballistic missile submarines. They constitute the most reliable weapons system in the U.S. inventory, having completed an aggregate of nearly ten years of deterrent patrols without even one day of degradation in target coverage. Last year, the ballistic missile submarine force completed 88 strategic deterrent patrols, including 21 by superb new Trident submarines.

The Navy's forward posture and combat readiness, and the role of maritime power in national security, were validated last year in combat operations off the Libyan coast. In late March, a three-carrier battle force of 33 ships and some 250 aircraft assembled near the Gulf of Sidra for a freedom of navigation exercise. The exercise was a challenge to Colonel Gadhafi's attempt to claim part of the Mediterranean Sea, as demarcated by the so-called "Line of Death." Libyan forces fired SA-5 surface-to-air missiles at Navy aircraft operating over international waters and sent missile-armed patrol boats to attack the U.S. fleet. U.S. naval forces responded by disabling a missile site and sinking at least two Libyan patrol boats. The episode again demonstrated that freedom of the seas is not always free, and that the U.S. requirement, as an insular and trading nation, to protect this basic international right may require highly capable maritime forces to thwart the megalomaniacal aspirations of well-armed tyrants.

In April, the Navy was again called on to demonstrate its warfighting capabilities, this time in response to continued Libyan terrorist actions. A two-carrier battle force in close cooperation with U.S. Air Force FB-111's conducted a joint strike on selected Libyan terrorist-related targets. Forces separated by nearly 3,000 miles arrived at target within seconds of each other and conducted a thoroughly integrated and successful operation. F/A-18 Hornets and A-7 Corsairs used anti-radiation missiles to neutralize air defenses. Air Force EF-111's Ravens and Navy/Marine EA-6B Prowlers jammed air defense surveillance while E-2C Hawkeye carrier-based radar surveillance aircraft directed F-14 Tomcat fighters manning combat air patrol stations. SH-60B Seahawk helicopters provided communications relay and visual surveillance services. A-6E Intruders and Air Force FB-111's penetrated the sophisticated Libyan air defense systems which was alerted both by a high level of diplomatic tension and by rumors of impending attacks. The strike force evaded over a hundred guided missiles, flying at low level in complete darkness, and accurately delivered laser-guided and other ordnance on target. New and sophisticated technologies, combined with old-fashioned tactical proficiency, were the keys to success.

I believe that the combat operations off Libya demonstrate several important facts. First, our basic approach to weapons and systems design, which seeks to leverage American advantages in technology into combat advantages, is a sound one. The integration of modern electronic warfare systems for intelligence gathering, surveillance, self-protection, warning and jamming during the operation acted as a force multiplier and was extremely effective. The successful use of these sytems in a combat environment served to illustrate their value as an integral part of naval warfare. High technology weapons such as the high-speed anti-radiation missile (HARM); satellite communications arrangements linking key participants; modern AAW and battle management systems, particularly Aegis -- all these not only made for a successful and precisely executed mission, but clearly saved American lives.

Second, the operation illustrated the degree to which modern naval operations are joint operations. In all phases of the Libyan operations, Navy forces worked in concert with the U.S. Air Force, utilizing national intelligence and surveillance assets. Air Force officers were embarked as planners and liaison officers in Navy flagships. During the Gulf of Sidra and strike operations, the on-scene Navy commander was also designated a joint task force commander reporting directly to an Army general, the U.S. Commander-in-Chief, Europe. Predetermined rules of engagement designed to reflect U.S. resolve were developed by the theater Commander to meet his operational needs and were approved by the Joint Chiefs of Staff. The strike itself demonstrated U.S. capability to strike precisely and on time -- with minimum losses -- using forces of two services which commenced their respective participation a continent apart.

Third, the ships involved in Libyan operations again give testimony to the mobility and flexibility of naval forces on routine deployments. The carrier USS Coral Sea (CV 43), "The Ageless Warrior", provides an excellent case in point. Coral Sea and her battlegroup were not deployed just to conduct a specific operation and return to base. Rather, Coral Sea left her homeport in Norfolk, Virginia, in October 1985, on a deployment which included participation in several major NATO exercises; bilateral exercises with the French, Italian, and Tunisian navies; and a French-sponsored exercise with British, Spanish, and Italian participation -- all in addition to operations near the Gulf of Sidra in January-April 1986. Because of the Navy's high readiness and forward posture, Coral Sea was available where needed, when needed, with the right capabilities when maritime power was required to support U.S. interests.

A Peacetime Presence

While crises and conflicts gather headlines, the Navy's worldwide and more routine peacetime operations provide important support to U.S. foreign policy objectives; are crucial to the national military strategy of deterrence, forward defense, and alliance-building; and permit realistic training with allies and sister services in areas where we may someday be required to fight. Since World War II, Navy ships, aircraft and other units have assured an American presence in most key areas of the world. Literally, no ocean or international sea goes without some Navy presence in the course of the year, although the numbers and types of ships or other units deployed to each area vary considerably based on national interests and security objectives.

Our record for 1986 is illustrative. We maintained a carrier battle group in the Indian Ocean or North Arabian Sea on a near-continual basis. We kept four or five surface combatants comprising the Middle East Force in the Persian Gulf, protecting U.S. interests in this high threat area. In the Western Pacific, we generally have had one or two carriers and their battle groups, as well as a number of submarines and one or two afloat amphibious ready groups, supporting regional stability and strengthening regional alliances and friendships. Of note, last year we deployed for the first time a battleship battle group (BBBG) to the Western Pacific, built around the Battleship New Jersey, demonstrating a concept which significantly capitalizes on the unique potential of these powerful capital ships while providing an important new capability in maritime power. This deployment provided some much-needed flexibility in carrier deployment schedules and was a superb exercise of our interoperability with land-based USAF forces.

We maintained a steady presence in the Caribbean with surface combatants, carrier and battleship battle groups, providing a visible sign of U.S. interest and commitment. In the South Atlantic, our presence was periodic, consisting largely of units which deployed on the 27th annual six-month UNITAS exercise with South American navies. UNITAS provides a modest U.S. presence in an area increasingly crucial to U.S. security. In many countries, this multi-national exercise provides the only military-to-military contact with the U.S. One UNITAS unit also made a short training cruise to West African waters and ports, supporting U.S. foreign policy goals in these areas.

In the Mediterranean, we maintained between one and three carrier battle groups depending on the state of the previously described operations against Libya. We also provided a number of submarines, an amphibious ready group and surface combatants on independent operations. As in previous years, we periodically sent several surface combatants into the Black Sea for a short period to assert our right of access.

Our North Atlantic presence was shaped largely by NATO exercises. We continue to build our base of experience in Northern waters of the Atlantic and Pacific. Submarines routinely deployed into Arctic waters where they might be expected to carry out wartime campaigns and battle plans in support of maritime strategy. As in past years, we also sent a surface combatant group from one of the North Atlantic exercises into the Baltic Sea for a short period to emphasize the international character of that sea and to exercise with our allies.

In all these areas, mobile logistic support ships delivered fuel, food, ordnance, and other supplies necessary to sustain a naval presence far from U.S. or other bases. The recent delivery of USNS Mercy also expands fleet support by providing afloat medical facilities, a valuable asset during combat operations. A second hospital ship, USNS Comfort, will soon provide additional deployable medical care and training.

Other units also supported U.S. objectives around the globe. Active and reserve maritime patrol aircraft squadrons conducted over 1,000 missions from U.S. and overseas bases, providing surface and subsurface surveillance of an impressive portion of the world's oceans. Navy Special Warfare Units, integral parts of battle group and amphibious operations, participated in exercises in 35 countries. Last fall, a Navy Seabee unit deployed to Guadalcanal in the Solomon Islands for a training exercise which, not accidentally, helped islanders repair major damage from a devastating tropical cyclone. Such deployments are not unique. Naval units regularly provide civic assistance to areas in need, to the limit that operational schedules and capabilities permit. Project Hand Clasp material, donated by U.S. organizations, is transported and hand delivered by Navy personnel throughout the world.

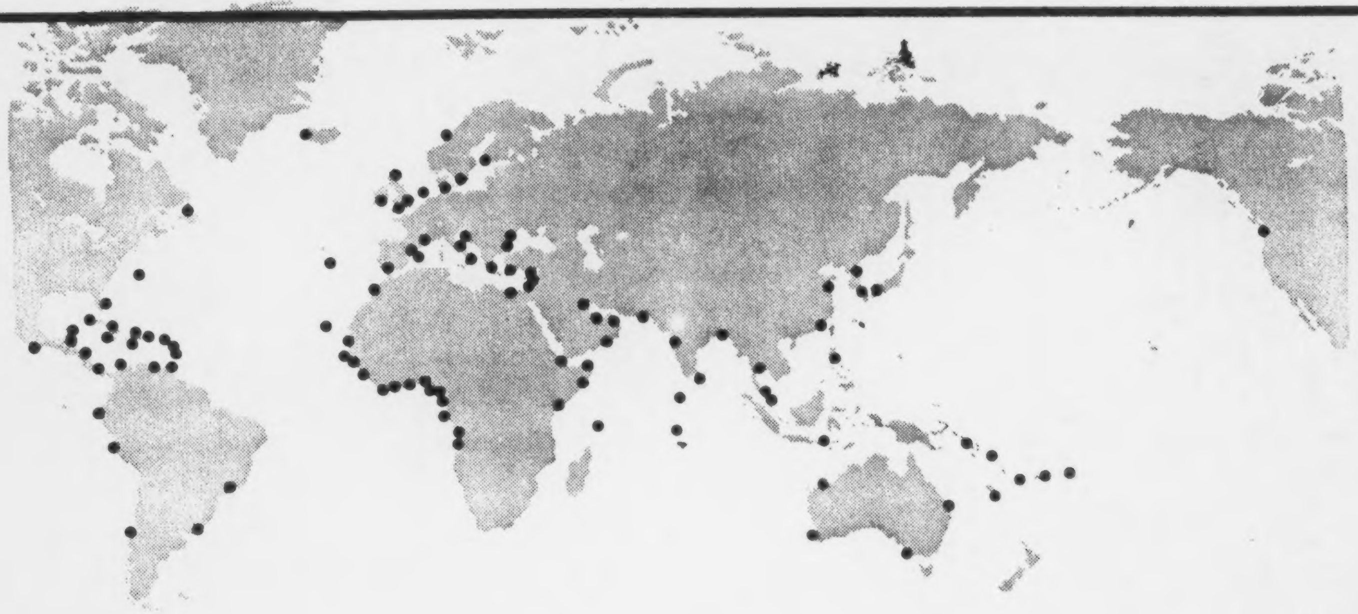
In 1986, U.S. naval units visited ports in 107 foreign countries as depicted in Figure 5. Particularly noteworthy was the visit of three ships in November to the port of Qingdao, Peoples Republic of China. The port call by USS Reeves (CG 24), USS Oldendorf (DD 972), and USS Rentz (FFG 46) was the first visit to mainland China by American warships in 37 years. The visit served important foreign policy objectives, and as usual, U.S. sailors proved superb ambassadors of good will.

USS Missouri got underway this year on her latest maiden voyage, becoming the third battleship to reenter active service. This impressive and multicapable battlewagon had the unique distinction of making, for her shakedown cruise, a three-month, round-the-world voyage that would illustrate the many facets of American peacetime presence and the mobility of U.S. naval power. From Long Beach, California, the ship sailed to Sydney, Australia, where she participated in a celebration of the Royal Australian Navy's 75th anniversary. Transiting the Suez Canal, she embarked a host of foreign dignitaries. In Istanbul, Turkey, she made an important port call which symbolized the fact that it was Missouri which, forty-one years earlier, had returned a former Turkish ambassador's body to his homeland in the first visible manifestation of the Truman Doctrine and of the U.S. commitment to preserve the freedom of Western Europe from communist expansion after World War II. This around-the-world cruise concluded with a transit of the Panama canal, then home to the West Coast after steaming over 24,000 nautical miles. Through this experience, Missouri's fine crew not only paid calls to numerous foreign nations, but also participated in a vivid and impressive demonstration of U.S. resolve and concern for our allied partners.

Naval units were also called upon in support of non-traditional national requirements. In FY 1986, the Navy again continued its support of law enforcement agencies in drug interdiction operations, providing 1287 ship days and 9464 flying hours to this effort. While Navy ships and planes were on station throughout the entire 12 month period, one intensive operation with significant Navy participation, Hat Trick II, resulted in the seizure of 750,000 pounds of illicit drugs.

After the tragic loss of the space shuttle Challenger in

NAVAL PORT VISITS - 1986



1986: 107 COUNTRIES

FIGURE 5

January of last year, numerous Navy ships and aircraft participated in the initial search effort. Navy divers aboard USS Preserver and USS Opportune, along with the deep-submergence vehicle NR1, participated in salvage and recovery operations. Both active and reserve divers and support personnel contributed to this 16 week-long effort.

Through increased emphasis on allied and joint exercises, U.S. forces have refined warfighting techniques in a continuing effort to improve interoperability with sister Services and foreign navies. Our Marine Corps units are, of course, an integral part of the Navy-Marine team, operating together daily in sharpening readiness and building combat capability. Air Force and Navy combat units continue to work under a Memorandum of Agreement under which we have amassed a body of experience in key tactical areas: AWACS anti-air warfare coordination and early warning, B-52 maritime support, data link improvements, communications interoperability and mutual support with tactical aircraft and support tankers. Last year, naval units participated in 22 major joint exercises, virtually all of which had U.S. Air Force participation.

Combined exercises with allied navies also consumed much of our attention in 1986, during which we participated in approximately 50 such events, ranging from Exercise Northern Wedding 86 in the North Atlantic and Norwegian Sea, to Exercise RIMPAC 86, in which a combined force of 81 allied naval vessels operated in the Northern Pacific theater. We continue to emphasize combined operational training, not only for the positive spirit of cooperation this engenders, but also for its training value in areas of the world important to U.S. maritime strategy.

MANAGEMENT ACHIEVEMENTS: MAXIMUM COMBAT POWER PER DOLLAR

Bringing maritime power to bear anywhere on the globe is the public service provided by your Navy, and as this report indicates, I think American citizens received a good return for their dollar last year. However, successful navies need more than staples --beans, bullets, and black oil -- to fight effectively. Our sailors are well-educated professionals, most of whom support families and deserve more than just a paycheck for their efforts. Our taxpayers are hard working Americans who expect value for their defense dollars. Today's Navy is managed by innovative, sensible, and sensitive leaders who feel a personal responsibility for the well-being of their sailors and accountability for the spending of public funds. These attributes pervade the Navy style of leadership and management.

Quality of Life

The living and working environment on and off our ships is a primary determinant in assuring young sailors that their leaders genuinely care about their well-being. Even with built-in hardships of extended family separation and spartan shipboard living conditions, steady progress has been made in this critical area as shown by a recent Department of Defense survey that indicated that enlisted servicemen's satisfaction with military life had almost doubled over the past seven years, from 34.6 percent to 56.6 percent. Officer satisfaction reflected similar impressive jumps from 54.1 percent to 78.1 percent. This substantial rise in job satisfaction is clearly reflected in other indicators. Navy-wide desertion rate, for example, is now only nine per thousand compared to 1979's rate of 29.6 per thousand and unauthorized absentees have been reduced dramatically (Figure 6).

Navy men and women are responding to programs and initiatives aimed at making the Navy a better place to live and work. Up-grading total health and physical conditioning is a keystone of this effort. Our objective is that every member strive to achieve and maintain the highest standard of physical and mental readiness. New, more stringent requirements incorporated last August call for all active duty enlisted and officer personnel to be tested on a semi-annual basis for body composition, flexibility, strength, and endurance. Commanding officers are encouraged to conduct physical training during working hours and to are required include semi-annual physical readiness test results in personnel evaluations having a bearing on promotion, advancement, and reenlistment. Navy men and women are being regularly instructed in all aspects of physical fitness including nutrition, injury prevention, and stress management.

With a goal of a safe, healthy, and unpolluted work and living environment through the establishment of appropriate environmental protective measures, we have extinguished the "smoking lamp" in many public facilities. We are not prohibiting the use of tobacco, but rather are promoting a positive educational and awareness approach to discourage its use and improve individual health, lifespan, and physical endurance.

Alcohol abuse continues to confront the Navy over the years despite an active program to promote recreational alternatives and remove the glamor of excessive alcohol consumption. During this past year we have taken additional concrete steps. All Navy clubs have been made aware of their responsibility in reducing alcohol consumption and intoxication. In Norfolk, one of our largest enlisted men's clubs has been converted into a family recreational center which no longer serves alcoholic beverages.

Without question, our greatest success in reshaping a healthy environment for our sailors resulted from our "Zero-Tolerance" policy toward drugs. The Los Angeles Times has described the Navy's drug screening program the "largest and best in the nation", not only because of the size of the effort, but also because of rigorous operating procedures followed at Navy drug screening laboratories. Program results are noteworthy. In 1980 a Pentagon survey showed that 47 percent of those under 25 were using drugs. Based on the results of nearly two million urinalysis samples accomplished by Navy drug screening labs in FY 86, confirmed drug abuse was down to less than 3 percent. Because of the high reliability of Navy testing facilities and procedures, we have lowered the confirmation cutoff levels for several drugs in 1986. This tightening may result in a slightly higher number of positive results, but should significantly improve the overall deterrent effect by improving our ability to detect marijuana and cocaine usage. This combination of rigorous laboratory standards and

UNAUTHORIZED ABSENCE AND DESERTION

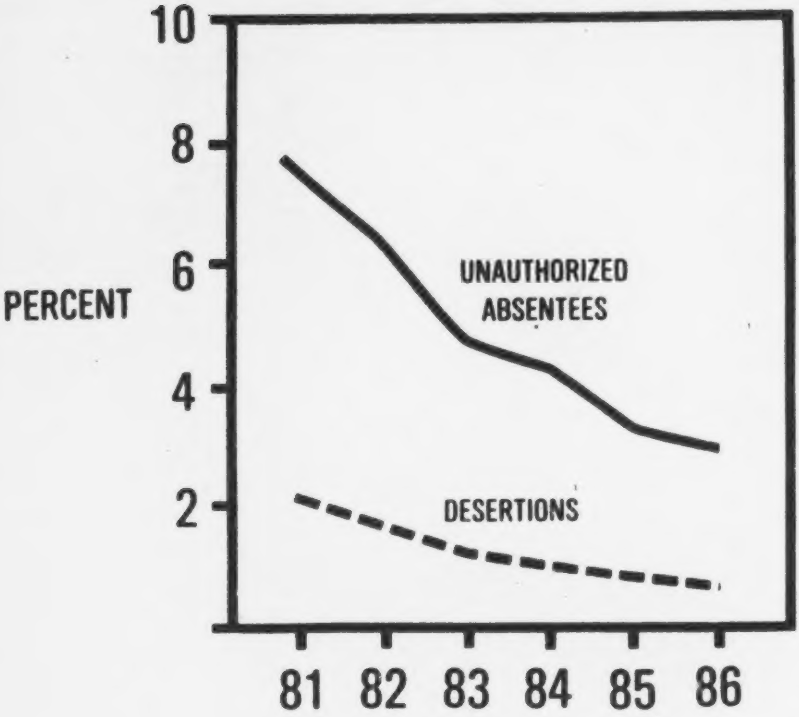


FIGURE 6

extraordinary command attention have eradicated the drug culture as a cause for major concern for today's sailors.

A long-term initiative, the Navy's Personal Excellence Program, is designed to maximize human capital both within the Navy and without. With flag officer leadership and my personal commitment, this program carries "pride and professionalism" to a higher plateau by helping Navy men and women improve themselves with education and self-improvement programs. The program will contribute to educational and personal development of America's youth through partnerships with public and private organizations. The pilot programs, in which individual sailors assist in the improvement of English, mathematics, science, and computer skills for elementary and secondary students, has now helped an estimated 20,000 children in over 175 schools. Navy units are adopting schools in the name of Personal Excellence. For example, crew members from USS Cape Cod (AD 44) have worked with over 400 students from a predominantly Hispanic school in San Diego. Another adjunct, the "Saturday Scholars" program, employs Navy technical school students as one-on-one tutors for inner city elementary school children. Further, we are encouraging even greater Navy family involvement with their local communities in scouting, youth sports, churches, charities, and PTA.

Personal Excellence also means individual educational growth. Participation in Navy's Voluntary Education Program, the Navy CAMPUS, reflects growing commitment among Navy members to continue their education. In FY 86, approximately 146,000 Navy personnel participated in some component of the voluntary education program. This includes a 14 percent increase in tuition assistance program participation over FY 85. The Navy wholeheartedly supports the new GI Bill enacted in 1984, considering it a basic educational entitlement in return for honorable military service. We are experiencing over 50 percent monthly participation in the new GI Bill among non-prior service personnel.

The spouses and dependents of our Navy men and women are also important members of the extended Navy community. Navy families are subjected to both the normal hardships of frequent moves to locations not of their choosing, as well as long periods of spouse separation during ship deployments, always the leading reason for opting out of a Navy career. Such separations are driven by national security interests and objectives, rigorous at-sea training requirements in a high risk environment, and the available forces. The Navy's increased force levels contribute directly to our ability to more effectively meet the threat in time of conflict or war, and in peacetime to provide increased flexibility in scheduling operations and training periods. The side benefits of allowing our ships and crews more time at home are: a reduction in overall operating costs with reduced tempo of operations (optempo), improvement in maintenance and formal training periods, and increase in morale with the prospects of more realistic leave and liberty schedules. Each of these "benefits" are strong positive factors in the Navy's readiness and retention equations. Guidelines have been issued requiring fleet commanders to schedule forces for deployment in a manner that will permit assigned personnel to remain in their homeport at least 50 percent of the time during a ship's operating cycle. Forward deployments are scheduled for six months, port to port, barring contingency developments beyond our control. After their return from deployment, ships and aircraft squadrons are not required to deploy again for at least another 12 months. Supported by the Joint Chiefs of Staff (JCS) and the Secretary of Defense, and recognized by the President, these requirements forced revisions in battle force schedules that, if retained, will have a strong postive impact on fleet morale and readiness.

Health care for Navy members and their dependents is another essential element in quality of life. Patterned after the Army's successful program, we have taken steps to establish, under contract, ten primary medical care clinics during FY 87 and FY 88. These NAVCARE clinics provide improved access to medical care for military members and their families. Operated by civilian medical staffs, they function as adjuncts to the Navy treatment facilities in the area, providing basic health care outpatient services to active duty and retired military members and their dependents at no cost on a walk-in, no appointment basis.

The Navy's successful network of Family Services Centers has increased to 63 units, with expanded charters to include assistance in practically every area of family life. In addition to budget counseling, pre-deployment and post-deployment support, relocation assistance, and parenting classes, 26 of the centers have embarked on major spouse employment programs.

The Navy Equal Opportunity Program has earned a reputation as one of Defense Department's finest in its 15 years of existence. A new emphasis places more responsibility for management of locally responsive programs at the command level. Equal opportunity programs have my special attention and continue to provide Navy personnel with an environment to enhance performance, advancement, and permit members to excel to their maximum ability.

The emphasis on quality of life of Navy people consumes a small portion of our budget but a large part of our energy and innovation. It is time well spent.

Working Smarter in an Era of Constrained Resources

Our managers and planners continue to develop creative approaches to new administrative, logistic, and organizational challenges. I believe we are truly "working smarter" in this era of constrained resources.

Training is the foundation of a competent fighting force. In the past year we reviewed our training programs to achieve three objectives: first, ensure an effective continuum between theoretical knowledge gained in the classroom and practical experience achieved at sea; second, reduce expensive training pipelines and discontinue unneeded courses wherever possible; and third, increase both the quality and quantity of individual training conducted onboard our ships. This review increased operating force readiness through pipeline savings while meeting training challenges of new and complex systems entering the fleet. Our operational forces, manned by higher levels of experienced petty officers capable of acting as instructors, can assume a greater portion of the schoolhouse training requirement by training on-the-job. To support this philosophy, an intensive one-week shipboard instructor indoctrination course was initiated to allow seasoned petty officers to more effectively assume this responsibility.

Legislative action, including Gramm-Rudman-Hollings budgetary cuts, required fleet commanders to reassess training procedures necessary to maintain combat proficiency with less time at sea and fewer flying hours. In response, our fleet commanders embarked on inport Battle Force training programs designed to refine battle fleet command structure and test tactics through realistic battle problems for groups of ships at the pier. In one such training evolution, we linked the forces of five battle groups, including Marine Corps and aviation support units, in three locations on the East Coast. Although not a viable substitute for individual unit training such as aircraft pilot proficiency and actual weapons firing exercises, this training does provide the opportunity to test tactics and employment of forces prior to conducting at sea Battle Force Training. Such training, previously accomplished as communications exercises, has been expanded, through use of computerized programming and innovative connectivity, to include activation of ships' and warfare commanders' combat centers. Such exercise training periods are being refined and will continue to reduce at-sea work-up time needed to meet theater/regional requirements and forward deployment preparations.

Dramatic progress has been made in just a few short years in putting the competitive edge back into Navy procurement. The Navy's turnaround in competition performance since 1982 is graphically portrayed in Figure 7. In FY 86 we achieved a historic milestone by competing more than half of our procurement dollars and about three-fourths of our contract actions. The Navy awarded 52 percent of all contract dollars competitively, about twice the percentage for FY 82. Seventy seven percent of small purchase dollars (buys of $1,000 to $25,000) were competed, indicating that the competition advocacy program has reached the "grass roots" procurement area. Seventy three percent of all procurement actions were competed, nearly 2 1/2 times the percentage for FY 82. In dollar terms, this means we awarded $23.2 billion competitively, an increase of $3 billion over FY 85 and almost $14 billion over FY 82. Navy inventory control points competed over 40 percent of total contract dollars, with the percentage of dollars for aviation parts alone representing almost a six-fold increase over FY 82 performance. Competition buying is a way of life in the Navy.

The Buy Our Spares Smart (BOSS) Program continues to yield substantial improvement in Navy spare parts management. In FY 86, the average price for shipboard spare parts bought in the previous year dropped by more than 10 percent for the third consecutive year. After three years of operation, the BOSS program has fully screened over 33,165 spare parts, breaking out 17,496 of them from the system prime contractor to either full competition or direct buys from the original equipment manufacturer. The "price fighter" organization has reviewed over 6,550 items by applying "should cost" analytic techniques.

COMPETITION PERFORMANCE

INCREASE IN PERCENTAGE OF CONTRACT ACTIONS/ DOLLARS AWARDED COMPETITIVELY

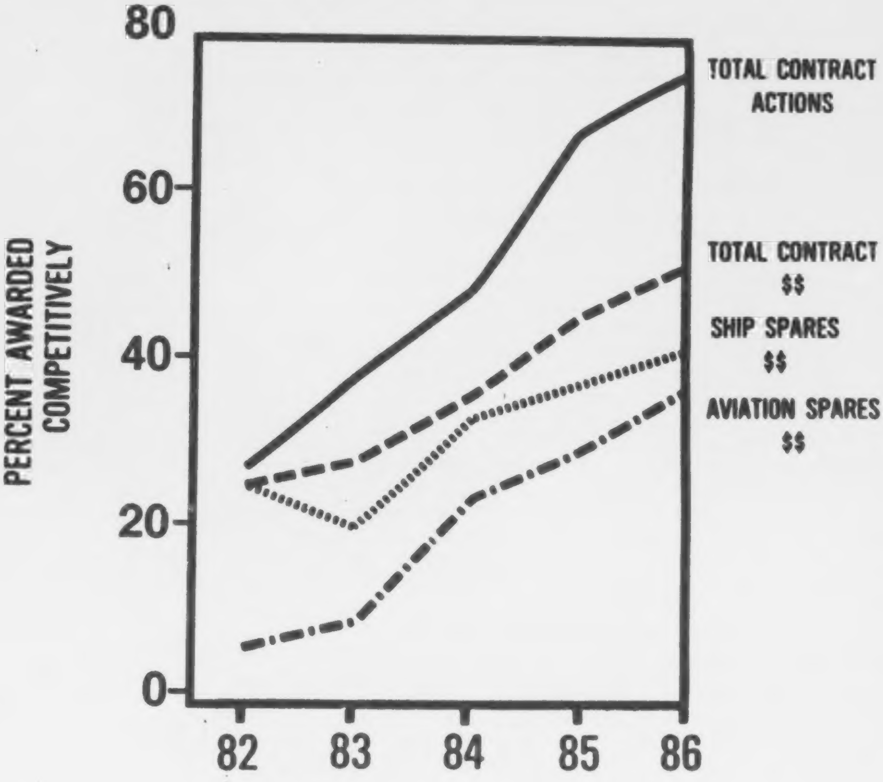


FIGURE 7

We are also updating accounting systems to streamline spare parts management. Using computer-read electronic bar codes, afloat storekeepers can post real-time receipt information to the inventory and financial records. New computers are now installed at inventory control points and will soon be installed at major supply centers, creating a closed loop inventory control system for our large spare parts investment. Inventory management, a big, complex task aboard ship, has been enhanced tremendously by installation of automatic data processing hardware and software that provides real time control of inventories. The concept of "pierside purchasing" helps afloat units by providing technical and pricing information, and by staying actively involved in the competitive contracting process on the waterfront.

The Navy has initiated programs to improve the administrative efficiency of its civilian workforce. Over the past six years, two Navy laboratories have conducted a demonstration project which allowed local managers to simplify the job evaluation, personnel assignment, and pay systems for white collar workers and focus more attention on worker performance and productivity. The project has been so successful that it prompted President Reagan to support introduction of legislation to provide widespread application of this management system throughout the Federal civilian sector. We support this initiative in helping meet our need for better management and for retaining a high quality civilian workforce.

Based on the number of creative management proposals that reach my office, I am convinced that the entire Navy has taken to heart the notion that we have a special trust with the taxpaying public, not only to save money wherever possible but also to constantly seek ways of doing business smarter. In my estimation, our Navy's procurement managers match the zeal, competence, and professionalism of its warfighters.

Total Force Integration

The active forces of the Navy comprise only a portion of the total force we must have available to prevail in protracted conventional war. Indeed, the "total force" shown in Figure 8 includes not only active and reserve but encompasses retired, standby reserve, and civilians, and in time of war, selected Coast Guard units.

The main objective behind the management of the Naval Reserve is the logical and efficient strengthening of the Navy's warfighting capacity through a process of horizontal integration. Having determined the extent of the reserve requirements, we then equip them with front line weaponry and integrate these units into fleet operations, tactical training, and war planning. This integration process has continued in all facets of the Naval Reserve. In the Surface Reserve Force we are witnessing an expansion in numbers of "state of the art" ships manned by mixed active and reserve crews. By the end of this year, Reserve personnel will operate seven Knox class frigates and 12 Oliver Hazard Perry class guided missile frigates, an increase of eight ships in just two years. Ship reinforcement units conduct all their ashore training with the same doctrines, manuals, and philosophy of their parent

THE TOTAL NAVY FORCE

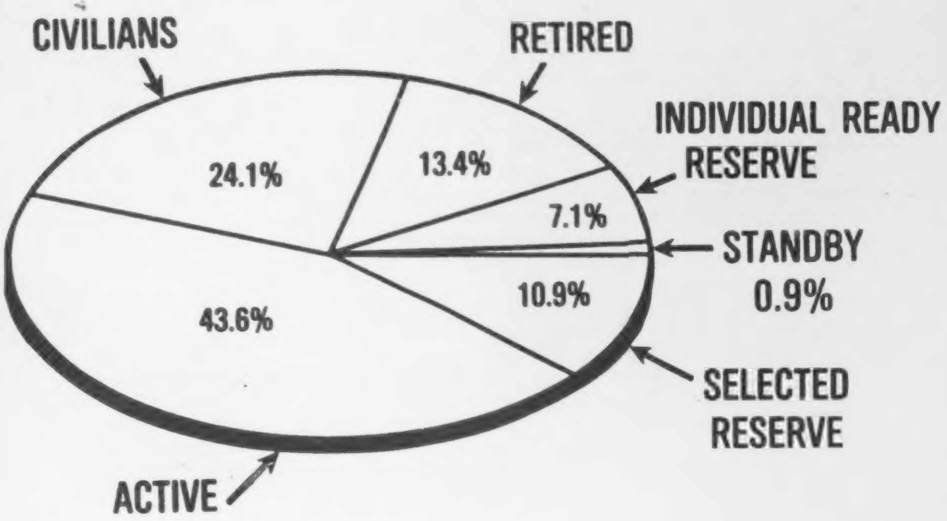


FIGURE 8

command, ensuring their immediate utility during wartime mobilization.

The Naval Air Reserve Force includes two fully qualified operational carrier air wings. These air wings are completing a modernization program designed to match their capabilities with the combat capability of an active air wing by 1991. Thirteen squadrons in the two Naval Reserve patrol airwings routinely substitute for active force squadrons at overseas deployment sites while performing their annual active duty for training. In recent years, these squadrons have deployed to Western Pacific and Eastern Atlantic operating areas to provide fleet support and gain realistic training by tracking deployed Soviet submarines. They and two Naval Reserve Airborne early warning squadrons flying E-2C aircraft have also been called upon to provide extensive drug interdiction services. Vital reserve participation was shown in service with the Sixth Fleet during the Libyan action last spring, as reservists manned Navy's only combat search and rescue helicopter squadron.

The Naval Reserve has assumed a more active role with the Coast Guard under the Maritime Defense Zone concept. The entire inshore undersea warfare capability of the Navy now consists of two Reserve Groups and 18 Naval Reserve Mobile Units. These units operate electronic surveillance vans containing radar, sonobuoy processors, and communications systems supporting the mission of coastal surveillance, although they may be deployed to guard any chokepoint, including amphibious objective areas. They have participated in an impressive list of exercises worldwide and meet a vigorous schedule of mutual support as a by-product of mobilization training each year, including requests for drug interdiction assistance.

Reserve training has been enhanced with the opening of operational technical training facilities to the Reserve. Fleet Training Centers are being reinforced with additional Training and Administration of Reserves (TAR) enlisted instructors to accommodate the 40,000 Reserve student quota increase since 1984.

The Naval Reserve Force, in concept and execution, epitomizes cost-effective management. The entire Reserve Force is structured to provide those crucial services the active forces require in the transition to war. Through meaningful training, advanced equipment, and thorough integration, reserves perform these mandatory wartime functions professionally -- and provide, in peacetime, relief for active duty personnel.

The other major element of our total force manpower resource is the civilian work force, most of whom contribute directly to the operational readiness of our ships and aircraft. Over half of the civilians work in our industrial activities, and are primarily engaged in depot maintenance of ships, aircraft, and related systems. Many other civilians contribute directly to fleet readiness by supporting the logistics system or helping to keep our Naval bases and air stations running. The remainder provide essential support in critical areas including training, medical care, and the development, engineering, and acquisition of ships, aircraft, and weapons systems. The size of our civilian work force will remain fairly constant in the future as we are taking active measures to increase productivity and efficiency.

Navy is to a large extent dependent on the U.S. Merchant Marine to assist in accomplishing the vital mission of strategic sealift -- moving warfighting material to support the combatant commanders' war plans. A disconcerting downward trend in both the number and capabilities of our merchant ships and those of our allies to support this mission has become evident in recent years and an increasing shortfall is developing in our ability to deliver the equipment and material required in the initial phases of a major conflict. Our Ready Reserve Force and prepositioning programs are designed to help offset the shortfall, but the continual decline in Merchant Marine lift capacity, shipyard capability and trained manpower is troubling, especially in light of the growth of the Soviet Flag Merchant Fleet to a position of preeminence in world trade and its complete integration into Soviet military planning.

Improving Jointness Wisely

A service which must train and integrate warfare experts who operate on, above, and below the sea, and support Marine forces afloat and ashore, has necessarily developed the ability to conduct "Joint" warfare. Operating with other services, cooperating with them on co-development programs, and being more responsive to the needs of operational commanders has become an institutionalized practice with the Navy and Marine Corps team. As I indicated earlier, there is no such thing as a major Fleet exercise without joint participation. Additionally, Air Force units provide maritime support in those areas for which they are best suited. Land-based tankers, tactical fighters, surveillance platforms, and long range bombers all play central roles in battle group operations when operating in adjacent theaters. We have also worked closely with the Army in addressing the question of strategic mobility. This interaction has resulted in significant mobility and sustainability improvements, including the pre-positioning of war materials, the cargo offload and discharge system, and joint logistics over the shore capability.

The Navy has participated with the Army and Air Force in the Joint Force Development Process (JFDP), whose purpose is to field complementary rather than duplicative capabilities. Towards this end, the Navy has agreed to cross-Service participation in the budget development process to ensure that programs essential to joint operations are properly addressed. Through the JFDP, the four Services have consolidated programs for Identification Friend or Foe systems, and have reviewed Service munitions research and development programs identifying fifteen potential joint programs to avoid duplication and to fill voids in research.

The Navy has supported and initiated joint service interoperability in space efforts such as the Defense Meteorological Satellite Program, a variety of communications satellites, and NAVSTAR Global Positioning System. Efforts are underway to develop an interoperability structure for the Navy's Relocatable Over-the-Horizon Radar and the Air Force's counterpart surveillance programs.

Exploiting Technology

We expect that technology will provide us leverage to maintain maritime superiority in all aspects of naval warfare. I have articulated two basic challenges to the Navy's technology community to develop options to accommodate to a changing future environment. The first is the need to address affordability at every phase of the research and development cycle. Specifically, we are seeking technologies which reduce costs of a wide variety of Navy systems. Part of the emphasis on the use of technology to achieve affordability is a search for application of low cost technologies including off-the-shelf commercial equipment which can be applied to Navy requirements without reducing warfighting capability. The second major challenge is to expedite the transition of high payoff technologies to the fleet. Our Advanced Technology Transition initiative includes a program designed to assure the transition of those technologies offering the best combination of availability and affordability using applications derived from Navy, other services, industrial, and foreign research and development efforts.

The Navy is a leader in implementing cooperative research and development programs with our allies in support of key conventional mission areas identified by NATO and area military commanders. Twenty-four of the 25 projects selected in FY 87 under the NATO Comparative Test Program, a major feature of arms cooperation legislation, are Navy initiatives. Major new projects include development of an Advanced Sea Mine and planning for an anti-air warfare system for frigate-sized ships. Through these and other jointly funded and developed efforts, the U.S. Navy will receive a higher return for each U.S. dollar invested and gain benefit of mature technology developed offshore.

SHAPING THE FUTURE: CHALLENGES INTO OPPORTUNITIES

The sound state of today's Navy is a tribute to determination and the recognition of the importance of maritime power in support of national security objectives by the Administration and the Congress. The ability to look to the future while dealing with the demands of the present is a necessity if the U.S. is to sustain success in a world where the only thing certain is that current circumstances are ephemeral. Navy planners are working not only to define and understand key issues critical to the success of tomorrow's Navy, but also to shape those trends within our grasp. I will discuss some of the challenges we face along with related Navy initiatives to transform these challenges into opportunities, focusing particularly on those not amenable to solution without the support of the Congress.

Manning Tomorrow's Navy

The decision to reinvigorate the Navy was made to restore confidence in our ability to maintain control of that vast portion of the globe that protects us from aggressors and unites us with allies. Our maritime strategy and 600 ship Navy have proceeded in concert from this strategic imperative. The additional manpower required to support the 600 ship Navy in deterring aggression and supporting U.S. interests abroad was estimated at 91,000 by the Secretary of the Navy in 1982.

In the ensuing years, the manning challenge has been met in part by high retention, sustained recruiting success, and managerial efficiencies -- driving a reduction of 6000 billets. Congress has supported our manpower needs by providing at least some endstrength growth (Figure 9), despite strong fiscal pressures and competing priorities. I am concerned, however, that the currently authorized growth profile coupled with an increasingly difficult recruiting environment may adversely impact the future manning of our fleet.

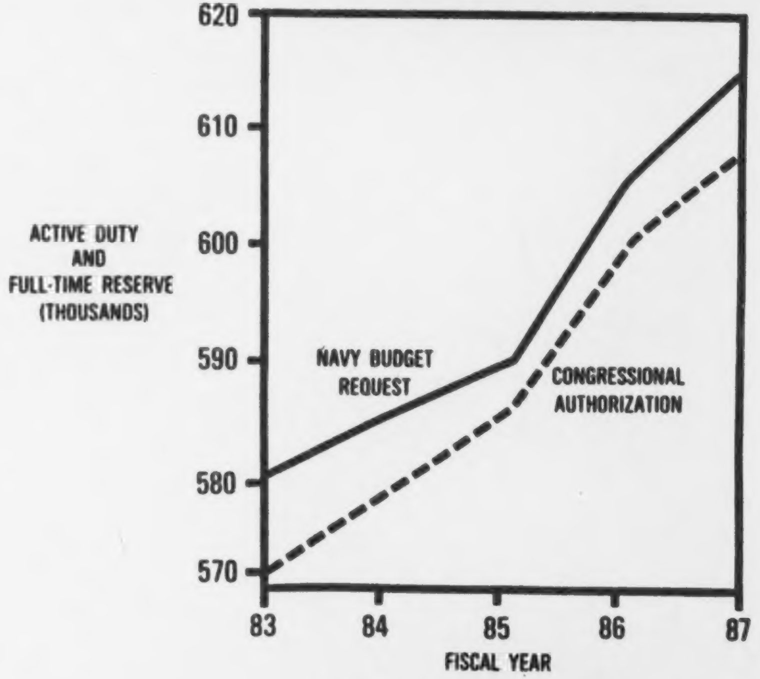
The problem is both quantitative and qualitative in nature. The mathematics of Navy manpower are simple: the Navy has 555 ships to man today compared with 479 ships in 1980. This growth in force structure with an even greater increase in size and unit capability has not been matched by commensurate endstrength growth.

Compounding quantitative requirements are adverse demographic trends which are making it harder to recruit adequate numbers and quality of young people precisely when the need is greatest to man a growing fleet. Population trends reveal a clear decline in the number of recruitable young people from whom we will be able to choose. Those young people available are both less skilled in basic mathematics and science than the preceding generation, and less disposed to favor the Navy over other services, based on recent attitudinal surveys. Our modest recruiting budgets and efforts do little to change these basic conditions.

Congressional reductions of the Navy's manpower request, plus the inability to advertise properly in a competitive recruiting market, have exacerbated this problem. Because we place the manpower requirements of operational units above support units, shore facilities are becoming seriously degraded. The manpower increase that has been authorized since 1983 has been directed to our ships and aircraft squadrons at the expense of needed support growth ashore. Over ninety-nine percent of the 1987-89 Navy programmed enlisted growth is directed toward fleet units. In addition to the effect on the support establishment ashore, the resultant billet structure is beginning to have an impact on the sea-shore rotation of our sailors, a majority of whom now can expect to spend over 55 percent of their Navy careers on sea duty. This percentage grows annually. The consequence of this increasingly arduous sea-shore rotation pattern may well be a delayed deleterious impact on retention, 4-6 years hence. In addition, any lag in manpower growth will result in a gap in experienced petty officers and mid-grade officers in the early 1990s analogous to the situation caused by the poor retention of the 1970s. If adequate personnel growth does not take place, experienced personnel needed to man new ships must be transferred from other ships or the shore establishment, leaving all units with a deficit of trained talent.

The Navy's immediate response to the endstrength and recruiting challenges has been threefold. First, we have honored our commitment to national security and fleet readiness by assigning the highest priority to growth needed for operational units while limiting required growth ashore,

NAVY MANPOWER REQUEST VS. CONGRESSIONAL AUTHORIZATION



	FY-83	FY-84	FY-85	FY-86	FY-87
SHORTFALLS	-8.7	-7.4	-4.2	-5.4	-7.4

FIGURE 9

including activities involved directly in fleet support. In addition, we have reduced training pipelines significantly in order to get our sailors to sea faster, and have extended average sea tours for the entire force.

Second, we work as hard as possible to continue to recruit adequate numbers of well-qualified young people to meet approved manpower authorizations. In Fiscal Year 1986 Navy accessions totalled 94,878 men and women, continuing a record of seven consecutive years during which recruiting goals have been met. Despite our continued best efforts, however, we see unsettling trends in quality indicators since FY 84, as Figure 10 shows. Ten percent of Navy new accessions were in the lowest enlistment-eligible mental group, Group IV. While this is comparable with Fiscal Year 1984 results, it comes at a time when every other service has reduced its percentage of recruits in Mental Group IV below the Navy's level. Similarly, although we continue to see high percentages of high school diploma graduates, we have experienced a steady decline since FY 84; and here too, the Navy now has the highest percentage of non-high school graduates of any service. Similarly, our delayed entry program of high quality recruits also continued its downward trend for a third consecutive year. The relationship of these declining quality trends to service advertising budgets is clear.

Third, we continue to emphasize retention to reduce the need for new recruits. Our overall retention effort is producing outstanding results as the statistics in Figure 11 indicate. We continued another healthy trend by reducing the number of undermanned petty officer ratings from 28 in FY 85 to 20 at the end of FY 86. While these results are positive, recruiting and endstrength challenges may require us in the long term to shift to a force with a much higher proportion of career personnel through substantially higher retention. This could require new initiatives in personnel management and tailored compensation.

The Navy officer community is a lean, well-managed force which has grown cautiously during the force expansion of the early 1980s. Given Navy technological and cockpit requirements, I have always been proud of our ability to maintain an enlisted to officer ratio of 7:1, in comparison with a non-Department of the Navy average of 5.3:1. Our modest officer expansion requirements are directed almost exclusively to seagoing billets between now and 1989. Congressional efforts to apply officer reductions to the Navy would appear especially inappropriate at this juncture considering both our measured recent officer growth and steady force structure expansion requiring highly trained pilots and engineering professionals.

A related concern is with one aspect of the recent DOD Reorganization Act in the area of officer personnel management that may have a harmful affect on our ability to wage war. The Navy has arrived at a system of tightly structured career paths for line officers in the various warfare communities which requires time at sea in a sequence of progressively more demanding assignments. From this group, we select the very best to command Navy ships and squadrons. Initiatives such as the joint specialist program might force us to change this

RECRUIT QUALITY INDICATORS

	HIGH SCHOOL DIPLOMA GRADUATES (%)			LOWEST MENTAL GROUP (%)		
	84	85	86	84	85	86
ARMY	91	91	91	13	9	4
NAVY	93	89	85	11	10	10
USMC	95	97	98	7	4	*
AIR FORCE	99	99	98	2	1	*
DOD	93	93	92	10	7	5

FIGURE 10

ENLISTED RETENTION STATISTICS

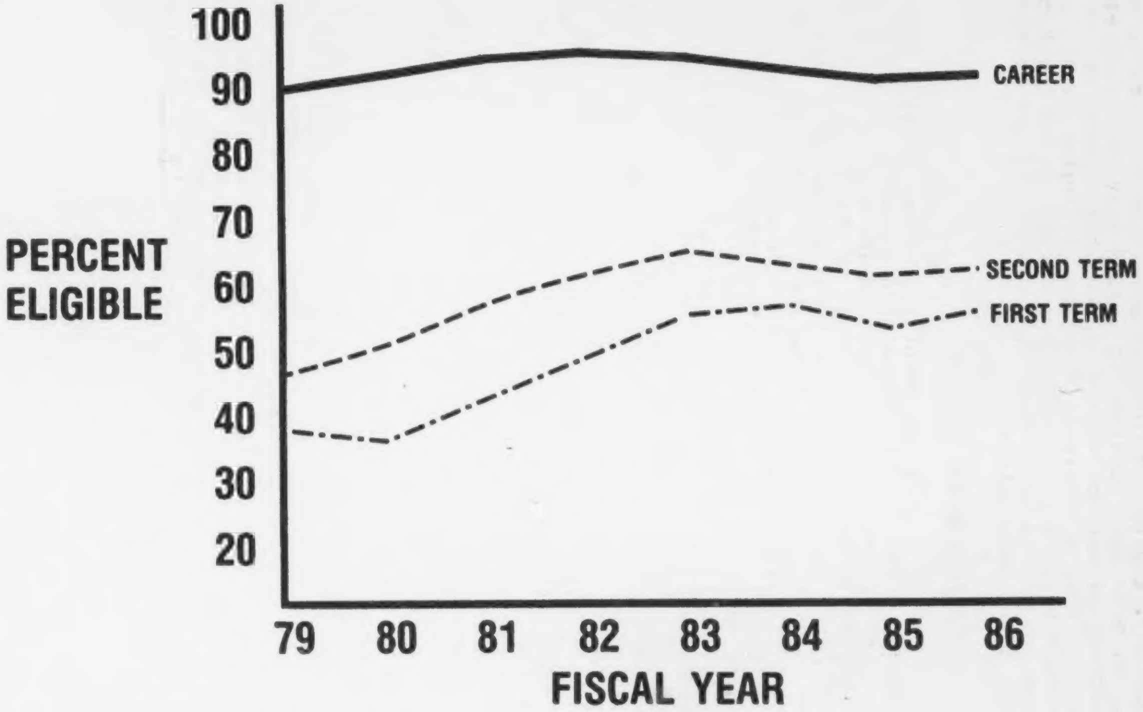


FIGURE 11

philosophy, separating our most promising officers from the sea. We must work together to ensure that the requirement to develop joint warfare expertise does not degrade our ability to place our best officers on fighting platforms for the Combatant Commander while still giving them opportunities for future growth and active participation in a competitive fashion in senior joint assignments.

Anti-Submarine Warfare

The United States has maintained a qualitative edge over the Soviet Union in most naval mission areas, although this margin has eroded in some. One mission area of vital importance, in which the challenge of the future is particularly pressing, is anti-submarine warfare (ASW). As I noted earlier, the Soviet submarine force now includes several classes of nuclear submarines which incorporate major gains in acoustic quieting and combat systems sophistication. Continued advances in the quality of that force lead me to rank ASW as my central warfighting concern. It is imperative that the Western Alliance have clear superiority in this area because of the threat of numbers (quantity) and improvement (quality) of the Soviet ASW inventory and the potential damage it can do.

The U.S. lead in ASW is substantial but narrowing more rapidly than earlier estimates, and we must give increased priority to programs which improve our ability to detect and successfully prosecute a more sophisticated adversary. To counter Soviet advances in submarine quieting, we have taken immediate action to deliver the highest payoff advanced concept ASW technology to the fleet through an integrated package of initiatives. Research efforts have been consolidated in advanced ASW elements to maximize payoff in technologies such as advanced acoustic processing, improved ocean surveillance, active sonar systems, and weapons lethality. The Space and Naval Warfare Systems Command has been reorganized to transform these theoretical concepts into operational capabilities. The overall long-term plan for improvements has been developed by the Navy's foremost ASW experts, led by the Director of Naval Warfare whose charter is to update the Navy's ASW Master Plan, which will guide research and acquisition efforts into the 1990s. Finally, with an appreciation for the complex world in which ASW operations are conducted, we continue to pursue a vigorous and focused oceanographic program. I anticipate this integrated ASW management strategy will lead to significant, broadly based improvements in our ASW capability, and urge your support for this effort aimed at sustaining U.S. ASW superiority.

The most critical ASW program in this budget, absolutely necessary to the execution of our national strategy, is the construction of the Seawolf (SSN 21) class submarine. This centerpiece of our future ASW force structure incorporates the most advanced technology reasonably available to preserve an imperative margin of submarine ASW superiority. Its quieting and tactical speed, coupled with advanced combat systems and greater weapons capacity, will allow it to prevail in a host of wartime missions. I ask your recognition of the criticality of Seawolf construction to our ASW program.

As we press the leading edges of ASW technology, we are pressing as well to fully exploit our current ASW forces and capabilities. Building on daily successful operational experience working against deployed Soviet submarines, fleet commanders have developed innovative tactics that capitalize on ASW force multipliers. Integrated and aggressive application of surface, submarine, air and surveillance capabilities -- coupled with a focus on and intelligent use of the environment in difficult ASW waters -- have reaped excellent experience and improved readiness dividends. In another initiative, a recently instituted fleet "ASW University" concept has yielded early valuable results as operationally current officers from all ASW communities improve their effectiveness and readiness through focused study and professional interaction.

The synergistic offensive capabilities of carrier battle forces, including the carrier with its organic fixed and rotary wing air ASW capability and ability to provide requisite local air superiority umbrella, and other ASW forces -- supporting SSNs, ASW-capable surface combatants, LAMPS helicopters, supporting surveillance systems and land based P-3 aircraft -- constitute a formidable and potent offensive ASW force.

Shore Facilities

The physical condition of the Navy's shore support facilities has deteriorated as a result of budget and funding constraints. This has resulted in lower shore support facility readiness and declining support for a more sophisticated fleet. In fact, when I see some of the buildings our highly motivated and intelligent sailors are asked to train in, I am not surprised that they return to their ships somewhat disillusioned. The primary cause of this decline has been the underfunding of military construction and property maintenance accounts.

Deficiencies exist not only in our ashore training and maintenance establishments, but also in military housing, where our shortage of 37,000 homes is expected to grow. One example of the 60 military construction projects deferred last year is the proposed relocation of the Naples Hospital, school and command center. These existing structures would not be safe in the event of an earthquake, a likely occurrence in the region. We can no longer afford to defer replacement and maintenance of essential support facilities.

To help solve this problem, the Shore Facility Life Extension Program was initiated as a means to prioritize and correct the poor condition of our shore facilities. Critical backlogged projects that most adversely impact the areas that matter: mission performance, safety, health, and quality of life, have been highlighted. The program emphasizes high savings for each investment dollar by isolating and focusing early attention on facilities whose usefulness and life expectancy we can extend most economically. My intention is to correct all high priority physical plant degradations by 1994.

Whenever possible, we seek to modernize existing structures at a fraction of the cost of new structures, balancing good business sense with operational requirements. For example, our budget includes upgrading buildings with flight simulators, classrooms, and maintenance spaces in support of the new T-45 trainer aircraft program, in structures that were first used to support World War II vintage aircraft trainers. In Norfolk, Virginia, improvements are slated to prolong the life of two warehouses first built in 1941, providing better protection and security for the extremely valuable spare parts supporting the the fleet. Our goal is to re-establish a high priority on maintenance of real property; we require Congressional support for this measured but high-payoff program.

MAINTAINING THE EDGE: FY 88-89 NAVY BUDGET

International realities and the fundamental requirements of U.S. national security strategy demand a consistent commitment to maritime power. As this report has shown, the nation's investment in its Navy over the past few years has demonstrably strengthened our maritime posture and produced concrete improvements in all aspects of naval capabilities. The American people have gotten their money's worth in a Navy that is ready and able to respond promptly and professionally, in conflict, crisis, or peace.

Because the state of the Navy today is sound, we can sustain recent accomplishments and meet future challenges with very modest growth. The Navy budget you have before you requests the minimum level of resources necessary to maintain our momentum and meet those challenges. As required by last year's Authorization Bill, this budget submission covers Fiscal Years 1988 and 1989. I strongly support two-year budgeting as a step toward stable long-range planning and funding necessary to safeguard U.S. maritime superiority and optimize the impact of every defense dollar. As you know, DOD real program growth has varied widely over the past 27 years, as Figure 12 shows. This uncertainty makes it difficult to build on past investment, ensure program stability, reap efficiencies of scale, and preserve the capabilities of our force. As partners in defense management, I request that the Congress help us sustain a sound Navy through stable budgets and a consistent commitment to defense.

The Navy budget requests a Total Obligational Authority (TOA) of $92.5 Billion for FY 88 and $97.3 Billion for FY 89, representing 2.7 percent real growth annually over FY 87 appropriations. This budget reflects my two overriding priorities: safeguarding material gains in total naval capability, readiness, and performance; and as the most important factor, ensuring that we continue to attract and retain those quality people so necessary to our continuing success. Consequently, the budget stresses readiness and sustainability, although as Figure 13 shows, we continue to strike a balance among all four pillars of naval capability.

Readiness funding comprises approximately 55 percent of TOA, reflecting our commitment to provide a force able to respond promptly and effectively to national needs despite tight budgets. Sustainability, at over 8 percent of TOA, has shown the most growth since 1980 of all the pillars, and reflects our deter-mination to support operational commanders' requirements for adequate numbers and quality of weapons and other material. Modernization funding remains relatively steady for FY 88 and 89 (17.6 and 16.5 percent respectively),

REAL PROGRAM GROWTH
DEPARTMENT OF THE NAVY

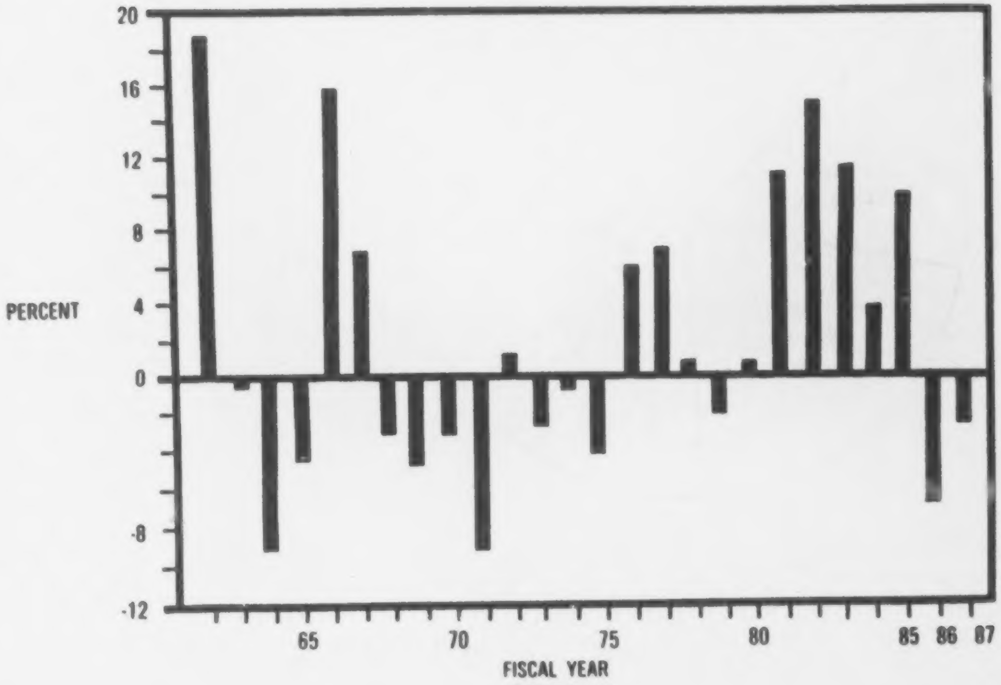


FIGURE 12

NAVY TOA BY PILLAR
FY 88 and 89

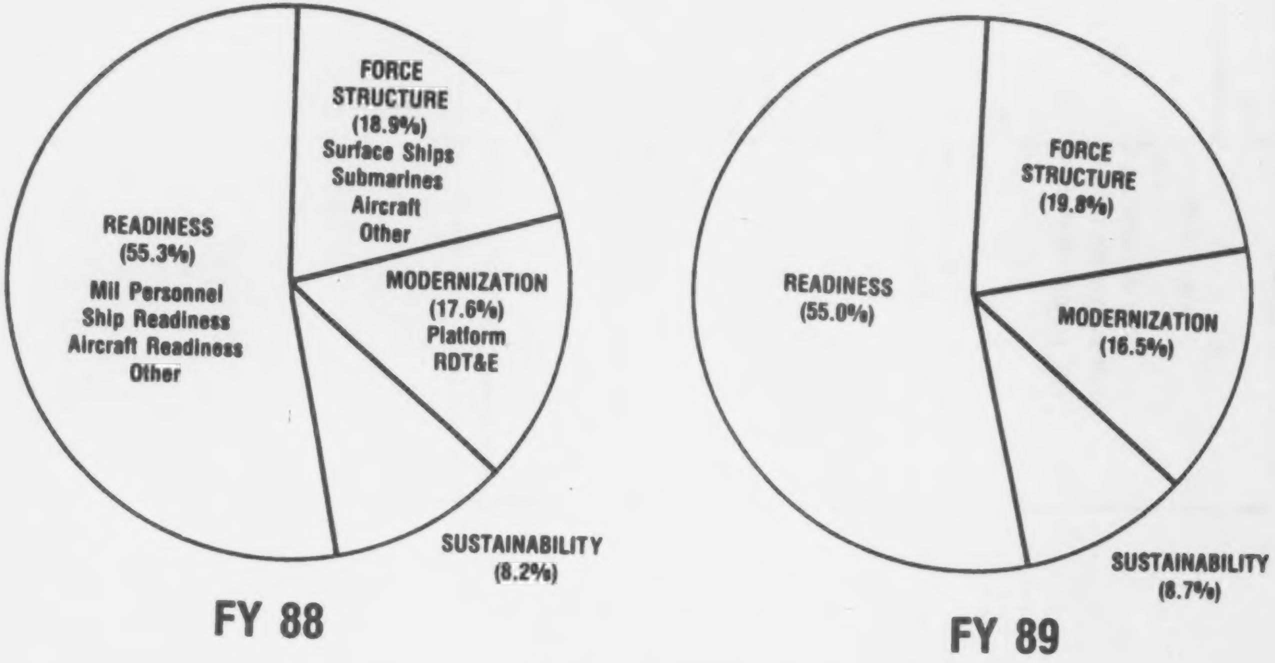


FIGURE 13

sufficient to achieve a balanced program of systems and hardware improvements. Lastly, force structure funding has declined as a percentage of TOA over recent fiscal years, as reflected in Figure 14. We have made considerable progress in recovering from the force structure deficit of the late seventies, and the force structure pillar's share of TOA (18.9 and 19.8 percent respectively) reflects an ability to sustain force levels with a more modest, albeit slightly increasing, investment.

Readiness

Readiness funding includes the costs of training, operating, and manning naval forces to carry out their assigned missions. It encompasses military personnel and their salaries, fuel, maintenance and repair of ships and aircraft, training costs, spare parts and other support items. In short, readiness is the day-to-day cost of operating the Navy. The Navy budget submission represents a real annual growth rate of 5 percent in readiness funding in FY 88 with continued growth in FY 89.

Approximately one-third of this request is for military personnel. I place my highest priority on programs that support people: our most perishable asset. The Navy's growth in ships and aircraft has already placed a strain on our available manpower. Large numbers of good sailors must be recruited and retained in an ever more competitive environment. This budget emphasizes the importance of proper manning and the stability of our benefits program as essential to the sustenance of maritime power. We are requesting minimal endstrength growth, averaging just over one percent per year over the next two years, in which force structure will expand by eight percent. This equates to active growth of 6,200 in FY 88 and 9,600 in FY 89 with commensurate full-time reserve endstrength growth of 1,029 and 1,160 respectively. This growth is essential to the proper manning and support of the ships and aircraft approved by the Congress in prior years.

As discussed earlier, we face a declining pool of eligible and qualified young people from which to recruit, extraordinary competition in the recruiting market -- from colleges and universities as well as other services -- and a declining propensity among eligible youths to serve in the Navy. Our requested recruiting and advertising budget is especially critical if we are to meet our future manpower requirements.

Retention is of equal importance to recruiting in keeping the needed amount of experience in our manning structure. The Selected Reenlistment Bonus (SRB) program has resulted in excellent recent improvements in some critically short areas. The retention of enlisted supervisors serving in nuclear powered surface ships has improved from 35 percent in 1982 to 63 percent in 1986, a direct result of Congressional approval of lifting the ceiling on SRB payments for critically short ratings. Analysis has shown that, without the $30 million required to fund SRB shortages, the Navy can expect to sustain the loss of over 2100 professional, mid-grade sailors serving in our most critical sea-going ratings.

Enlisted TAR personnel serve tours of sea duty with their

FOUR PILLAR TRENDS
CONSTANT DOLLARS

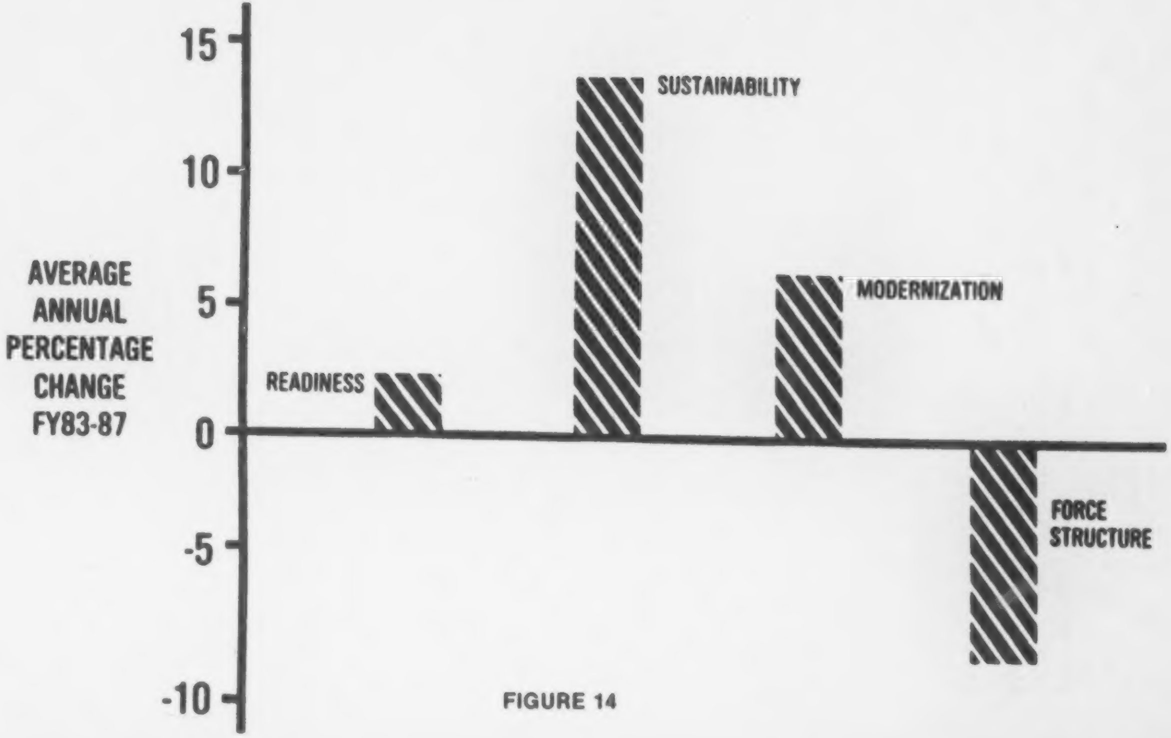


FIGURE 14

regular Navy counterparts on Reserve ships, yet they are not eligible for the same retention incentives. Authority to pay a relatively modest SRB to a limited number of TAR personnel in critical ratings is needed to enable us to man the active duty portion of an increasing number of ships in the Naval Reserve. We are also requesting a limited Unit Incentive Pay for enlisted Selected Reservists to assist in manning specific difficult-to-man units such as Naval Reserve ships. Focused compensation initiatives such as these are critical to our ability to man an expanding Naval Reserve.

A restructuring of Career Sea Pay is needed to provide more efficient targeting of sea pay dollars to career members in sea intensive ratings and to improve manning of critical skills on repair ships. This proposal will eliminate the current disincentives whereby members must serve at least three consecutive years on their second sea duty tour to receive the same amount of pay as they received at the end of their first sea tour.

The Navy's most serious officer shortages are in nuclear-propulsion qualified officers and mid-grade aviators. Today we are experiencing a shortage of 470 experienced nuclear-trained officers in the grades of lieutenant commander through captain. These officers are required as commanding officers, executive officers, and department heads at sea as well as for key fleet support billets ashore. We are filling sea billets today through extended and back-to-back sea tours with the consequence that these officers are unavailable for professional development shore tours, including joint assignments. Enhancements to Nuclear Officer Incentive Pay enacted in FY 86 will enable us to increase the pool of nuclear-trained junior officers, thereby reducing this shortage to about 250 by the end of FY 92. This problem can be further ameliorated by granting permanent authority to temporarily promote exceptional lieutenants to fill essential lieutenant commander engineering billets. This type of promotion is a no cost management tool -- all promotions occur within statutory grade ceilings -- that is used only when needed. Additionally, action is needed to restore value to Submarine Duty Incentive Pay (SUBPAY). SUBPAY has eroded in value over 40 percent since 1981 and its importance in retaining the vast experience and talent of our submarine officers and enlisted personnel has diminished commensurately.

Additionally, serious officer shortages are resulting from an inability to retain mid-grade experienced aviators. The aviation shortage is now in excess of 1,000 pilots, due to competition with a strong civilian marketplace. To date, this shortage has been managed by monitoring officer distribution closely, but it is being felt in shore billets and is beginning to impact negatively on the personal and career needs of individual aviators. Aviation Officer Continuation Pay (AOCP) provided increased compensation and achieved a strong response when introduced in 1981. In 1986, less than 40 percent of those eligible accepted an AOCP contract, due in part to a steady decrease in its net value. AOCP needs to remain as an effective primary compensation tool to avoid unacceptably high loss rates of experienced aviators.

Sustainability

Sustainability comprises funding for stocks of weapons, reserve forces, and war reserve material; in short, the Navy's staying power in conflict. Logistics requirements, central drivers of our ability to conduct sustained warfare, include demands for timely delivery of fuel, spares and repair parts. Given that national strategy requires planning for protracted conventional war, this area of the budget is critical and has consistently been a high priority of Navy and unified commanders.

Navy's sustainability account has risen steadily over the past eight years. Its real growth over the last five years, 58 percent, far surpasses any of the other pillars. However, the account remains susceptible to budget cuts partly because its results are not immediate. Some weapons bought with FY 83 funds are just now arriving in our shipboard magazines. Stocks on hand are 20-90 percent larger today than in 1981 and expected deliveries this year will vastly improve these percentages.

We realize that we must do our part to enhance sustainability. This imperative is recognized in our Strike Master Plan, which embodies an acquisition strategy for future weapons calling for a reduction in varieties of weapons and requiring affordability as a major consideration of all future systems. We intend to apply such a strategy in all weapon acquisition areas.

Navy planning objectives for threat ordnance are predicated on the assumption that Navy platforms will not run out of weapons prior to war termination. Stocks of surface-to-air missiles, air-to-air missiles, cruise missiles, torpedoes, and sonobuoys are beginning to approach these objectives. Stable and sufficient funding in this area will allow attainment of objectives in the early 1990s.

Modernization

Modernization includes all Navy research, development, testing, and evaluation (RDT&E), fleet modernization or ship alterations, and aircraft and weapons modifications. This funding allows improvements in current platforms and systems as well as research and development for future improvements. Modernization has grown annually 6.7 percent in real terms over the past 7 years. This funding area has, however, suffered from recent budget-tightening actions and will sustain a modest decline in FY 88 and FY 89.

Investment in modernization of ships and aircraft allows us to maintain techological superiority over potential adversaries and threats. Since we are outnumbered by the Soviets at sea, we have maintained a qualitative edge by leveraging American advantages in technology on quality design, innovation, and construction. This advantage is increasingly difficult to retain as the Soviets show a commitment to qualitative as well as quantitative improvements. The Soviet submarine force exemplifies this competition as they improve in quietness and capability. The quality factor on which the Navy depends for superiority in combat can only be preserved through aggressive fleet modernization.

The heart of Navy modernization efforts is a vigorous program of basic research, exploratory development and advanced technology development essential to exploitation of new technologies and ideas that contribute to current and future tactical improvements. Our strengthened independent test and evaluation program is fully in consonance with DOD's increased emphasis on the role of operational testing in the acquisition process. The FY 88-89 budget request continues this fundamental emphasis on new ideas and systems innovation, and provides funding stability for advanced projects supported under last year's budget.

Major strategic programs include continued modernization of our sea-based strategic deterrent, notably development of the Trident II D-5 submarine-launched ballistic missile with its prompt hard target kill capability. The Navy budget includes funding for 66 D-5 missiles whose operational testing program has just commenced, in both FY 88 and FY 89. These missiles will outfit the new Trident submarines scheduled to operate from Kings Bay, Georgia and support necessary operational tests subsequent to initial operational capability in 1989.

The Fleet Modernization Program calls for continued incorporation of technological and warfighting improvements in existing systems and ship classes. For example, the advanced capability provided by vertical launching systems for new Aegis cruisers will be incorporated in alterations to many Spruance class destroyers, giving these proven ASW platforms greatly increased magazine loadouts, flexibility and capability for ASW weapons, and cruise missiles. Advances in AAW include an upgraded Navy Tactical Data System aboard cruisers and aircraft carriers, and New Threat Upgrade for major combatants to improve response time and threat-handling capabilities.

Anti-submarine warfare modernization receives emphasis in air and surface development programs. For example, the SQQ-89 Integrated ASW Combat System increases the passive towed array search and processing capability of surface ships and their embarked helicopters by orders of magnitude over earlier systems. The follow-on SQQ-89 Improvement Program will add an advanced low-frequency active sonar, essential to keep pace with the quiet threat projected for the future. Fiber optic technologies are being investigated as a way to achieve major cost reductions compared with conventional fabrication techniques. Improvements are being incorporated in airborne ASW with the P-3 Update IV aircraft. For use in the current P-3C and new P-3G maritime patrol aircraft, this update will provide vastly improved non-acoustic radar and electronic detection capabilities along with a significantly improved signal processor. Our ASW weaponry is expected to make great strides in accuracy and lethality with the forthcoming Mark 50 air/surface-launched torpedo and the advanced capability sub-launched torpedo. Both weapons are crucial to keeping the technological edge. Besides enhancing unit effectiveness, technological improvements in individual ASW platforms and weapons will add to the aggregate ASW capability of the force. This is the greatest payoff against tougher targets. More than ever, the successful ASW campaign of the future will hinge on the aggressive coordinated application of surface, subsurface, air, and surveillance capabilities, exerting vigorous, inexorable pressure on the enemy below.

Anti-Surface Warfare capability has been significantly upgraded by the marriage of Tomahawk Anti-ship Missiles and the Submarine and Surface Ship Vertical Launch System. Equally important is the increase in our over-the-horizon detection, classification, and targeting capabilities through advance technology options including inverse synthetic aperture radar (ISAR). Programs are in place to add ISAR to P-3C, S-3B, and A-6F aircraft. Fusing these assets has demonstrated a promising capability using off-the-shelf equipment for the management of long range targeting and battle damage assessment.

Force Structure

Force structure includes the construction of new ships, ship conversions and reactivation, and aircraft procurement required to meet an ever increasing threat. The introduction of new ships and aircraft is one of the most tangible aspects of maritime power, and a paramount aspect of our new strength and capability. Recent ship construction programs are ambitious, yet force structure accounts for only about 19 percent of TOA, down over one percentage point from FY 87 and 10 percent since 1983. The 600th ship enters the fleet in 1989 and the current budget request represents the minimum funding necessary to modernize and sustain this capable force into the 1990s and beyond. Figure 15 contains the Navy Five Year Shipbuilding plan, showing the ship construction made possible by the FY 88-89 Navy budget.

The carrier battle group will remain a critical element in our ability to meet U.S. national security requirements well into the next century. The aircraft carrier and the other units in the battle group are designed and built to meet the threat expected in the future, and they will continue to incorporate the latest available technology to ensure their capability to respond to military requirements across the full spectrum of conflict.

National commitments are stressing available aircraft carrier assets as we build to achieve a level of 15 deployable units. Based on national planning estimates, analysis, studies, and real-world operational experience, and coupled with the realities of affordability and attainability, we have determined that 15 deployable battle carrier groups are the minimum necessary to carry out a strategy that will maintain all of our vital national interests. USS Abraham Lincoln (CVN 72) and USS George Washington (CVN 73), currently under construction will allow us to achieve this required level. Two of our aging carriers enter their fifth decade of proud national service in the 1990s and must be replaced. These older ships, limited by age and size, can no longer be modernized and repaired to effectively match the Soviet threat of the twenty-first century. We have thus requested funding in this budget for advance procurement and initial construction of two carriers, CVN 74 and CVN 75, to replace these aging units. The acquisition plan for these two new carriers was designed to take full advantage of previously proven production efficiencies resulting from multi-ship procurement while

SHIP CONSTRUCTION PLAN

NEW CONSTRUCTION	FY88	FY89	FY90	FY91	FY92
TRIDENT	1	1	1	1	1
CVN	-	-	1	-	-
SSN-688	3	2	2	2	1
SSN-21	-	1	-	2	2
CG-47	2	2	1	-	-
DDG-51	3	3	3	5	6
LHD-1	1	1	-	1	-
LSD-41 (Variant)	1	-	1	1	2
MCM-1	3	-	-	-	-
MHC-1	-	2	3	3	4
TAO-187	2	2	2	1	-
TAGOS	-	3	3	2	-
AE-36	-	-	-	1	1
AOE-6	-	1	-	2	-
ARS	-	-	1	-	-
AGX	-	1	2	4	-
PXM	-	-	1	-	4
LCAC	-	(9)	(12)	(12)	(12)
SUB TOTAL	**16**	**19**	**21**	**25**	**21**
CONVERSIONS					
CV SLEP	1	-	-	1	-
AO Jumbo C)	1	2	1	-	-
TACS (C)	2	2	-	-	-
SUB TOTAL	**4**	**4**	**1**	**1**	**-**
TOTAL	**20**	**23**	**22**	**26**	**21**

FIGURE 15

ensuring a cost-effective employment of the nation's shipbuilding resources.

A top shipbuilding priority is to ensure funding for the lead submarine of the Seawolf (SSN-21) Class in FY 89. The capabilities provided by this platform are, quite simply, indispensible and crucial to our command of the seas well into the next century. Its superior quieting and tactical speed, coupled with advanced combat systems and greater weapons capacity, will allow it to prevail in the performance of a host of wartime missions in support of strategy.

We continue to add to our growing inventory of capable and technically-advanced Aegis cruisers, with two more of these awesome platforms commissioned in 1986. The most recent, Bunker Hill, adds the revolutionary firepower of vertical launch to a lightning fast, computer-aided combat system. Fleet capabilities expand exponentially with the arrival of each Aegis ship; and this budget request supports proceeding with two more units in FY 88 and 89.

The follow-on Aegis platform, the Arleigh Burke (DDG 51) Class guided missile destroyer, is also a top shipbuilding priority. The most powerful class of destroyer ever to go to sea, Arleigh Burke will combine the Aegis AAW and SQQ-89 ASW combat system with an impressive array of weaponry: vertically launched SM-2 surface-to-air missiles, the 5"/54 caliber lightweight gun, and the Close-In Weapon System for anti-missile defense. The first ship of this class was funded in FY 85, and two more were appropriated in FY 87. We are requesting three ships in both FY 88 and FY 89, proceeding toward a goal of 29 ships of this class.

One additional Trident submarine per year capable of accommodating the range and accuracy improvements of the Trident II/D-5 system has been included in the Navy Five Year shipbuilding plan. This program continues on or ahead of schedule with the D-5 missile scheduled for operational deployment in 1989.

The first of the Improved Los Angeles (SSN 688) Class nuclear-powered submarines was launched in December, adding quieter and more capable ships to our fleet of attack submarines. We request three additional 688 Class attack submarines in FY 88 and two in FY 89.

With the delivery in 1986 of USS Germantown (LSD 42) and six amphibious air cushion vehicles, our long term amphibious force expansion program moved closer toward our goal of lift for the assault echelons of a Maritime Amphibious Force and a Marine Amphibious Brigade. The shipbuilding plan reflects fiscal pressures forcing a delay in achieving that goal from the mid-1990s to the late 1990s. The third and fourth units of WASP (LHD 1) Class and the first cargo-variant Whidby Island (LSD 41) Class, included in the FY 88 and FY 89 Navy budget, will enable the Navy-Marine Corps Team to project additional amphibious capability ashore well into the next century and offset the adverse effects of amphibious ship block obsolescence.

The growing fleet of TAGOS ocean surveillance ships adds a low-cost but highly useful dimension to our ASW surveillance capabilities, consistently meeting or exceeding operational expectations to date. Recent operations using multiple TAGOS platforms in the Western Pacific and Norwegian Sea have provided strong justification for three additional units in FY 89.

The obsolescent minesweeper force built over 30 years ago is being replaced by an ambitious plan including 14 mine counter-measures ships of the Avenger Class, and 17 MHC 1 Class coastal mine hunters. These ships are designed to counter Soviet mine inventories, by far the world's largest, and ensure that U.S. coastal waters can be cleared of this menace to enable breakout of military and commercial ships from U.S. ports. The final units of the Avenger Class are included in the FY 88 budget; two MHCs are included in FY 89.

As the battle force striking arm grows in size and capability, the mobile combat logistics force must expand and modernize. One primary logistics imperative is replacement of aging fleet oilers by continued procurement of two new TAO 187 class oilers in FY 88 and FY 89. The first of four AOE 6 Class fast combat support ships, designed to accommodate the needs of a complete battle group on station, was funded in FY 87 and one additional ship is requested in FY 89.

Figure 16 is the Navy aircraft procurement plan. The mix of aircraft in the plan continues to support a force level requirement of 15 deployable carriers, 14 active and two reserve carrier air wings, 24 active and 13 reserve patrol squadrons, and one reserve and three active Marine air wings. This procurement program is built upon a foundation of a balance between require-ments, available funding and optimal acquisition strategies.

Our objective is to ensure that we put to sea a modern and effective force capable of meeting all commitments. No other aircraft more clearly represents progress toward our goal than the F/A-18 Hornet, a true force multiplier that provides operational commanders with flexibility to employ it in either the fighter or attack role. The F/A-18 is the nation's first strike-fighter, designed for such traditional strike applications as interdiction and close air support without compromising fighter capabilities. The result is an aircraft with excellent fighter and self-defense capabilities that increases strike mission survivability and supplements the F-14 in fleet air defense.

The V-22A Osprey, a joint service development program, combines the best features of helicopters and fixed wing turboprop aircraft. Osprey will be capable of flying over 2,000 nautical miles without refueling, providing Navy a dramatically improved combat search and rescue capability. Its first flight is scheduled in June 1988.

The SH-60F is under development to replace the SH-3H as our carrier inner-zone ASW helicopter. A firm-fixed price contract has been signed for development of the SH-60F and includes firm-fixed price options for the first five lots of production. The SH-60F will employ a new longer range active dipping sonar in addition to sonobuoys to track and attack submarines. This

AIRCRAFT PROCUREMENT PLAN

	FY88	FY89	FY90	FY91	FY92
A-6 E/F	12	18	24	24	36
EA-6 B	6	9	9	9	9
AV-8B	32	32	15	15	15
F-14	12	12	19	30	42
F/A-18	84	72	72	72	72
CH-53E	14	14	4	-	-
V-22	-	-	12	45	61
AH-1W	22	12	-	-	-
SH-60B	6	6	6	12	12
SH-60F	18	18	18	12	12
P-3G	-	-	4	25	25
E-2C	6	6	6	6	6
EX(C-2)	8	8	-	-	-
T-44 A	-	-	15	-	-
T-45TS	12	24	24	48	48
E-6 A	3	7	-	-	-
HCS	3	3	3	3	-
TOTAL	**238**	**241**	**231**	**301**	**338**

FIGURE 16

helicopter will incorporate significant improvements in reliability and maintainability as well as vastly improved tactical capabilities.

The A-6F, with its improved combat survivability and upgraded attack weapons systems, will enhance the Navy's already impressive ability to conduct precision all-weather strikes against pinpoint targets defended by the most advanced surface-to-air threat systems.

The F-14A+, with its new GE F110 engines, will be more than a match for threat fighters in the close-in, air combat arena. The follow-on program, the F-14D, will close emerging gaps in the carrier battle group's outer air capability against new-generation Soviet bombers and cruise missiles.

This aircraft procurement plan, which includes Marine Corps aviation as well, provides modest growth to properly complement fleet force structure. Support for this plan will help check the aging trend of our aircraft, and achieve our goal to put to sea a modern and efficient force able to meet all commitments.

CONCLUSION

A warship flying the stars and stripes evokes a sense of pride and patriotism in Americans everywhere, and is an unmistakable symbol of U.S. maritime power for all who witness its self-assured, majestic entry into a port of call. Mr. Chairman, our Navy indeed resembles such a proud ship as it enters 1987. Almost 600 ships and 600,000 sailors strong, the U.S. Navy is a formidable force in peace or war. However, those of us manning the Navy's institutional "ship" know that our success was not achieved overnight. Just as the performance of a ship's engineering, navigation, and combat systems improves gradually with proper maintenance and care, so it degrades -- only rapidly -- without proper sustainment.

Today's Navy is comprised of the finest sailors in the world. Its volunteers see the world and receive unparalleled levels of responsibility in return for extraordinarily long hours of work, under sometimes grueling conditions, often many thousands of miles and months away from home. Its ships and aircraft have a professional look of self-assurance that advertises, in the best U.S. Navy tradition, "Don't Tread on Me." Due largely to your past efforts, our improved management of resources, and especially the hard work of our sailors, the Navy has never been in better overall condition.

The Navy is proud to be the front line of America's defense in an era where our enemies are numerous, well-armed, and frequently willing to use force to accomplish their objectives. We have kept pace with this challenge and surpassed it, not only with capability, but also with superior strategy and resource management. Your Navy will continue this quest for excellence, and with proper support, ensure the inviolability of the lives and way of life of all Americans.

STATEMENT OF GEN. P.X. KELLEY, COMMANDANT, U.S. MARINE CORPS

STATUS OF MARINE CORPS

Chairman STENNIS. Thank you very much.

Now, General Kelley, you proceed, and cover such points as you see fit.

General KELLEY. I want to thank you also, Mr. Chairman and the members of the committee, for their very thoughtful comments.

I have submitted a prepared statement.

What I really wanted to do was elaborate a little further, because I believe I owe it to this committee, on the subject brought up by Senator Hollings. I'm sorry that he had to leave, but I want to promise you and the committee members, if you would pass on to them for me, that there is no group more embarrassed by these events which have taken place in Moscow, and more concerned with the impact they have had on our national security, or may have had on our national security, than the Marines. And I mean all Marines, past and present. I can only beg your patience while we make every effort.

General KELLEY. I wanted to beg your patience while we make a concerted effort. I guarantee you it's a matter of the highest priority to determine the facts so that we can take all the corrective actions.

I'm going to promise you, we're not going to leave any stone unturned, regardless of the consequences. But we've got to continue this thing and assure that we do it in due process.

In the meantime, I think there are already some painful lessons learned, or I should say—relearned might be a better word—that behind that smiling exterior of Secretary General Gorbachev, which sometimes may be disarming, is a communist country still determined to destroy the United States of America.

Out there right now there are KGB agents who will exploit every human frailty and weakness, even here in Washington. And I think this is a good lesson to be reemphasized to the people of the country.

But despite these very disturbing consequences, or the disturbing event in Moscow, let me say for you and for the record and for the American people, that I remain steadfast in my belief that the Marine Corps as an institution remains as solid as the rock of Gibraltar.

For over 211 years, it has answered every call for the defense of our country with courage and selfless dedication and great honor.

At this moment we have almost 200,000 Marines on active duty around the world, and they are the finest group that I have ever seen.

They, like their forebears, find the allegation that a fellow Marine has been involved in espionage to be absolutely reprehensible.

So I ask the American people and you to judge the institution, this very unique institution, not by the acts of a few, or the alleged acts of a few, but by the patriotic and exemplary conduct which has been and remains their basic heritage.

That's what I wanted to say, Mr. Chairman.

Chairman STENNIS. Well, I commend you for saying that. I know you mean it, and I think the people haven't blamed the Marine Corps for these things; not yet.

But they will if you don't conquer it. And I think you will conquer it and take care of it.

I think the average person believes that now. And just don't let time run out on you. And you can do those things. You will have to. You will have to clean house.

All right, is there anything else you wish to say, General?

General KELLEY. No, sir. Thank you, sir.

[The prepared statement of General Kelley follows:]

GENERAL P. X. KELLEY
COMMANDANT
OF THE MARINE CORPS

DEPARTMENT OF THE NAVY
UNITED STATES MARINE CORPS

STATEMENT ON

POSTURE, PLANS, AND PROGRAMS FOR FISCAL YEARS 1988 THROUGH 1992

BIOGRAPHY

GENERAL P. X. KELLEY, USMC

General Paul X. Kelley is the Commandant of the Marine Corps, Headquarters Marine Corps, Washington, D.C. General Kelley was born on November 11, 1928, in Boston, Mass. He graduated from Villanova University with a B.S. degree in Economics and was commissioned a Marine second lieutenant in June 1950.

In March 1951, after completing instruction at The Basic School, Quantico, Va., he served consecutively as a platoon leader, assistant battalion operations officer and assistant division training officer with the 2d Marine Division, Camp Lejeune, N.C. He was transferred to the USS *Salem*, Flagship of the 6th Fleet, during September 1952, serving as the Executive Officer and then the Commanding Officer of the Marine Detachment for a period of 20 months. He was promoted to captain on December 16, 1953.

He was ordered to Camp Pendleton, Calif., in July 1954, where he served as a battalion executive officer with the 1st Infantry Training Regiment. Transferred to Japan in February 1955, he served as the Division Training Officer, 3d Marine Division. From August 1955 to June 1956, he served as the Aide-de-Camp to the Deputy Commanding General, and then as Assistant Force Training Officer, Fleet Marine Force, Pacific, in Hawaii.

Returning to the U.S. in July 1956, General Kelley became the Special Assistant to the Director of Personnel at Headquarters Marine Corps, Washington, D.C., until December 1957. Following his assignment in Washington, he completed the Airborne Pathfinder School at Ft. Benning, Ga. In February 1958, he was assigned to the newly activated 2d Force Reconnaissance Company, Force Troops, Fleet Marine Force, Atlantic, Camp Lejeune, where he served as the Executive Officer and then Commanding Officer.

From September 1960 to May 1961, he was the U.S. Marine Corps Exchange Officer with the British Royal Marines. During this tour he attended the Commando Course in England, served as Assistant Operations Officer with 45 Commando in Aden, and as Commander "C" Troop, 42 Commando in Singapore, Malaya and Borneo. On March 1, 1961, he was promoted to major.

He was assigned to Marine Corps Schools, Quantico, in July 1961, and served there as a tactics phase chief at The Basic School and then Reconnaissance and Surveillance Officer at the Marine Corps Landing Force Development Center.

In June 1964, he assumed duties as Commanding Officer, Marine Barracks, Newport, R.I. He remained at that post until August 1965, when he was transferred to Vietnam and reported to III Marine Amphibious Force, FMF, Pacific, as the Combat Intelligence Officer. Following this assignment, he served as the Commanding Officer, 2d Battalion, 4th Marine Regiment in Vietnam. He was promoted to lieutenant colonel on January 20, 1966. During this tour as battalion commander, he earned the Silver Star Medal, the Legion of Merit with Combat "V" and two awards of the Bronze Star Medal with Combat "V".

From Vietnam, he proceeded to the U.S. Army Infantry School at Ft. Benning, where he served from August 1966 to July 1968, as the Senior Marine Corps Representative of the Commandant of the Marine Corps. He attended the Air War College, Maxwell Air Force Base, Ala., graduating as a "Distinguished Graduate" in May 1969. For his excellence in politico-military strategy while a student at the Air War College, the Board of Trustees of the National Geographic Society elected him a life member.

He returned to Headquarters Marine Corps in June 1969, as the Military Assistant to the Assistant Commandant. He was promoted to colonel on April, 1, 1970, and in June 1970 was reassigned to Vietnam where he commanded the 1st Marine Regiment, 1st Marine Division. General Kelley deployed the regiment, the last Marine ground combat unit to leave Vietnam, to Camp Pendleton, Calif., in May 1971. During his second tour in Vietnam, he was awarded a second Legion of Merit with Combat "V".

Reassigned to the Washington area in July 1971, General Kelley served as the Chief, Southeast Asia Branch, Plans and Policy Directorate, Organization of the Joint Chiefs of Staff, where he remained until November 1973, when he was assigned as the Executive Assistant to the Director, Joint Staff. Upon completion of this tour he was awarded a third Legion of Merit.

Following his promotion to brigadier general on August 6, 1974, he was assigned as the Commanding General, 4th Marine Division.

In June, 1975, General Kelley was ordered to the Marine Corps Development and Education Command, at Quantico, where he assumed the duties as Director, Education Center and was advanced to the grade of major general on June 29, 1976.

In May 1978, General Kelley was ordered to Headquarters Marine Corps, where he became Deputy Chief of Staff for Requirements and Programs.

On February 4, 1980, General Kelley was promoted to lieutenant general and appointed by the President as the first Commander of the Rapid Deployment Joint Task Force, (renamed the United States Central Command (USCENTCOM) in January 1983), a four-service force with headquarters at MacDill AFB, Tampa, Florida.

General Kelley was promoted to the rank of general and assumed duties as Assistant Commandant of the Marine Corps and Chief of Staff on July 1, 1981. He assumed his present office as Commandant of the Marine Corps on July 1, 1983.

General Kelley's personal decorations and awards include: the Silver Star Medal; Legion of Merit with Combat "V" and two gold stars in lieu of second and third awards; the Bronze Star Medal with Combat "V" and gold star in lieu of a second award; the Joint Service Commendation Medal; Navy

Commendation Medal; and the Army Commendation Medal. He is a Marine Corps Parachutist and U.S. Army Master Parachutist.

General Kelley has been awarded honorary doctoral degrees from Villanova University, Norwich University, Webster University, Jacksonville University, and the United States Sports Academy.

General Kelley and his wife, the former Barbara Adams of Fall River, Mass., have a daughter, Mrs. John Cimko.

I

INTRODUCTION

Mr. Chairman, members of the Committee:

As the 28th Commandant of the United States Marine Corps, this is my fourth and final report to you on the posture of the Marine Corps. On 30 June 1987, I will retire from active duty, having completed 37 continuous years of military service as a Marine.

During my extensive travels throughout the Marine Corps, which always include numerous discussions with Marines of all ranks, one common theme stands out. That is the firm conviction that our readiness to go to war today is the highest it has been in our peacetime history. Knowing Marines as I do, if they believe that their Corps is ready, then it is ready! In this regard, however, much of the credit for today's readiness belongs to a long line of our distinguished forebears, including my predecessors. They have provided the current generation of Marines with the cornerstones, not the least of which is an enviable reputation for courage on the battlefield, upon which we have built our Nation's FORCE-IN-READINESS. They held high and passed a torch which burns brightly with history and tradition, and I salute them!

For all of our dealings with the Congress during the past three and one-half years, I have emphasized to all Marines the importance of two words--honesty and integrity--regardless of the consequences. We have an obligation to the citizens of this great Country to ensure that each and every dollar of public funds which has been authorized and appropriated by the Congress for the Marine Corps is spent to optimize our combat capabilities. We do not tolerate waste, fraud, or abuse. These words are alien to responsible Marines!

The Marine Corps of today is a quality force--quality people--quality equipment--quality training--and quality standards in the way we take care of our Marines and their precious loved ones. But, we should never rest on our laurels. We must always look toward the future with innovation and imagination.

In the history of warfare, Marine Air-Ground Task Forces are unique. In one military Service we bring together on the battlefield the ground, air, combat service support, and command elements necessary to fight and win. We organize, train, and exercise in peace as we will fight in war.

As can be seen from the foregoing, I am, by nature, an optimist when it comes to the Marine Corps. With that said, however, I am also a realist, and, as such, I do have several significant concerns about the future. These include the implementation of certain provisions of the Department of Defense Reorganization Act of 1986 and the potential effects of reduced defense funding. These concerns are contained in Section IV, and I urge their reading.

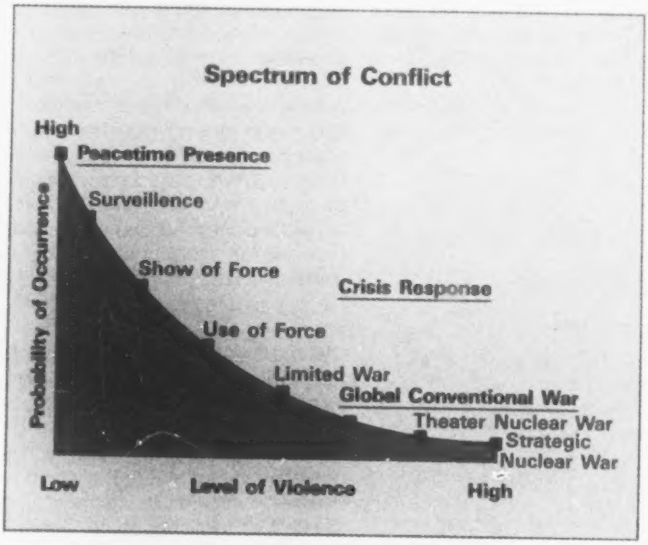
Let me now provide you with the state of the Corps.

II

STATE OF THE CORPS

The Marine Corps, in concert with the Navy, provides this Nation with the capability to project sustainable power across the waters into distant regions of the world. We are America's premier force-in-readiness, capable of fighting across the entire spectrum of conflict (Figure II-1). Our highest probability of employment, however, remains as an instrument of foreign policy--our traditional role during periods of undeclared war. By our peacetime presence, the naval Services can bolster deterrence, support diplomacy, or counter encroachment. The range and mobility of forward-deployed naval forces, moving unrestricted on the open sea lanes, provide an effective crisis response. Since World War II, naval forces have participated in approximately 80 percent of these crises in which the United States has been involved. The versatility of Marine Corps forces is further demonstrated by their ability to participate in naval campaigns and those which support the continental campaign during general war.

Figure II-1

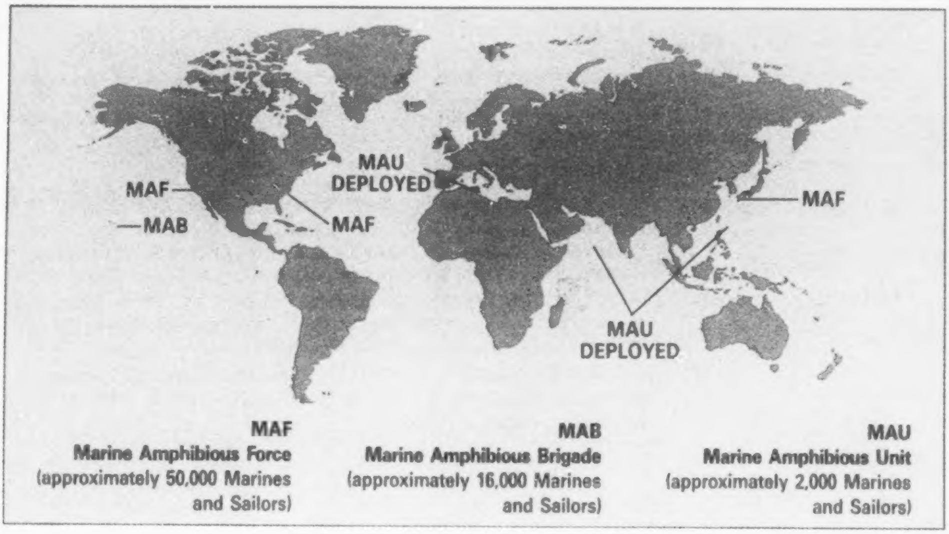


Our effectiveness is the result of three basic factors: our organization for combat; our ability to project power--rapidly and decisively; and the esprit of our Marines.

We stand ready to deploy expeditionary forces which are organized from existing combat-ready units. These task-organized entities, generically referred to as Marine Air-Ground Task Forces, consist of aviation combat, ground combat, and combat service support elements that are formed under a single command element. This unity of command at the tactical level allows the commander absolute control of his subordinate elements which is vital for success in combat.

Figure II-2
Marine Air-Ground Task Force Locations Around the World

Our strategically positioned air-ground teams are located as indicated in Figure II-2. These locations enhance worldwide response using a variety of transportation assets.


MAF
MAB
MAU DEPLOYED
MAF
MAF
MAU DEPLOYED
MAF
Marine Amphibious Force
(approximately 50,000 Marines and Sailors)
MAB
Marine Amphibious Brigade
(approximately 16,000 Marines and Sailors)
MAU
Marine Amphibious Unit
(approximately 2,000 Marines and Sailors)

Funding in recent years has enabled us to buy the ships and equipment needed to reduce the time required to project power. Our increased capabilities are the result of a number of programs which came to fruition within the past few years. A Headquarters Marine Corps' publication, Concepts and Issues which should be available during March 1987 reviews some of these programs and provides a detailed look at how we are programming resources for the future.

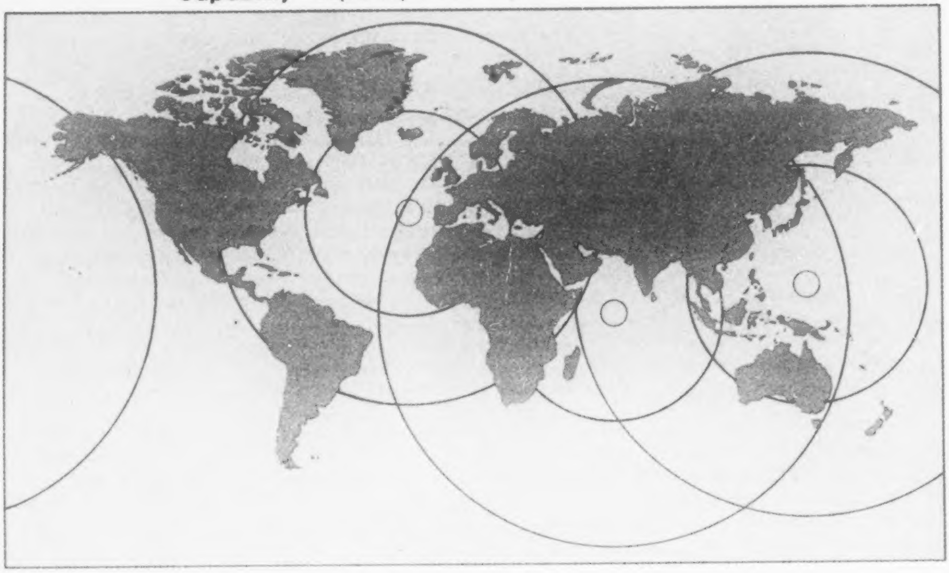
The most significant development in strategic mobility has been the Maritime Prepositioning Ships (MPS) program. A Marine Amphibious Brigade can be flown to an objective area to marry-up at a secure site with equipment that has been prepositioned, thus reducing the closure time as depicted in Figure II-3. The normal operating areas of the three MPS squadrons are indicated on the map by the smallest of the concentric circles. The larger circles represent maximum closure times of 7 and 14 days, respectively.

Squadron 1 in the Eastern Atlantic is still being negotiated. MPS Squadron 2 is homeported at Diego Garcia, and MPS-3 is homeported at Guam/Tinian.

As new equipment and deployment concepts were introduced in the 1970's, greater reliance was of necessity placed upon the helicopter to satisfy emergency heavy-lift requirements. The introduction of the MPS concept implicitly fostered an increased need for heavy-lift helicopters to transport equipment and supplies in sufficient levels to sustain the airlifted ground force, and has provided renewed justification for a self-deployable CH-53E.

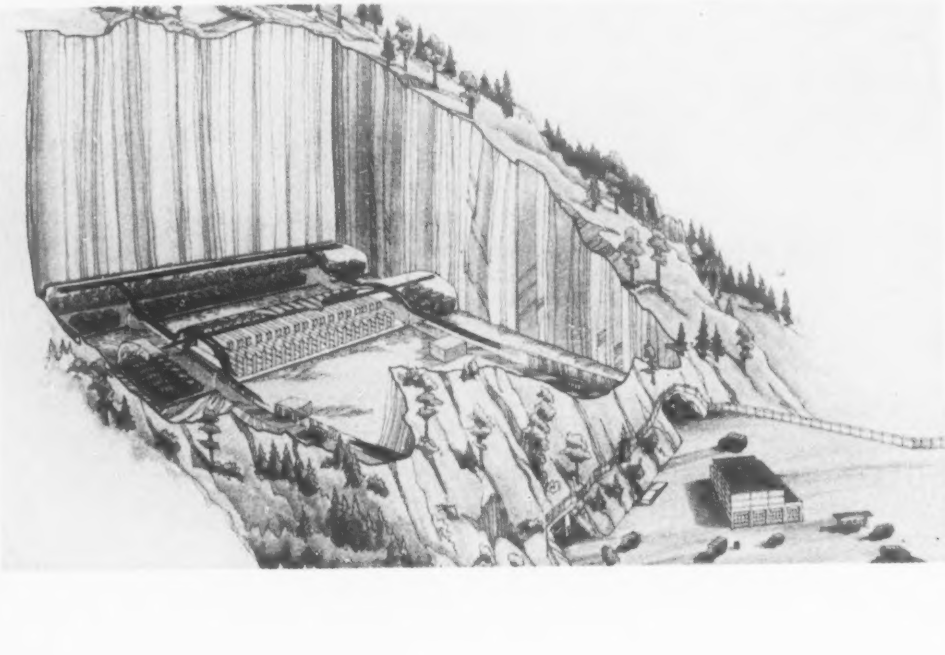
Figure II-3
Rapid Response/Global Capability

As an update, MPS Squadron 3 achieved full operational capability on 30 September 1986. The homeport for MPS



Another prepositioning measure which will enhance our responsiveness is the Norway land prepositioning program. The underground storage site is depicted in Figure II-4. It consists of selected equipment and supplies for a Marine Amphibious Brigade which could be committed to help secure NATO's northern flank. Our response time, as a result of this program, will be reduced from weeks to days.

Figure II-4
Artist's concept of equipment storage site

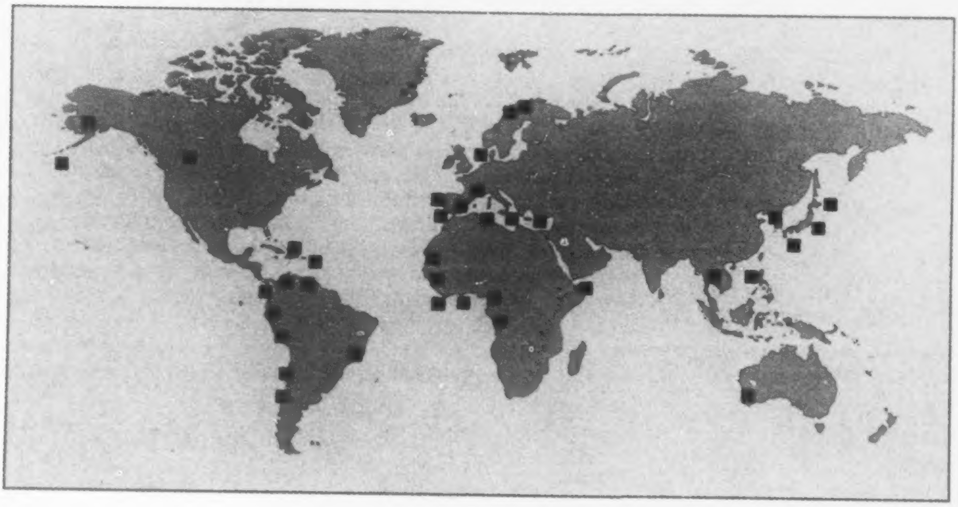


The Marine Corps has not only dedicated itself to solving the problem of how to get our forces to a crisis region but, more importantly, on concepts for employment. It is the sensitive transition from the deployment to the employment phase which requires constant training and demanding exercises to test our readiness. Global operational and exercise deployments are shown in Figure II-5.

Our training is the key to our success. And simply put, it makes us 'Marines' and enables us to perform our missions. Our introductory training is the genesis of the Marine spirit. Our Marines are led by officers who receive their initial training at The Basic School (Figure II-6), then specialized training in their various military occupational fields. Selected officers attend formal military schools within the Marine Corps and other Services at appropriate times throughout their careers. For our recruits, we seek to produce Marines who are committed to the service of their country, as well as young people who will be better citizens.

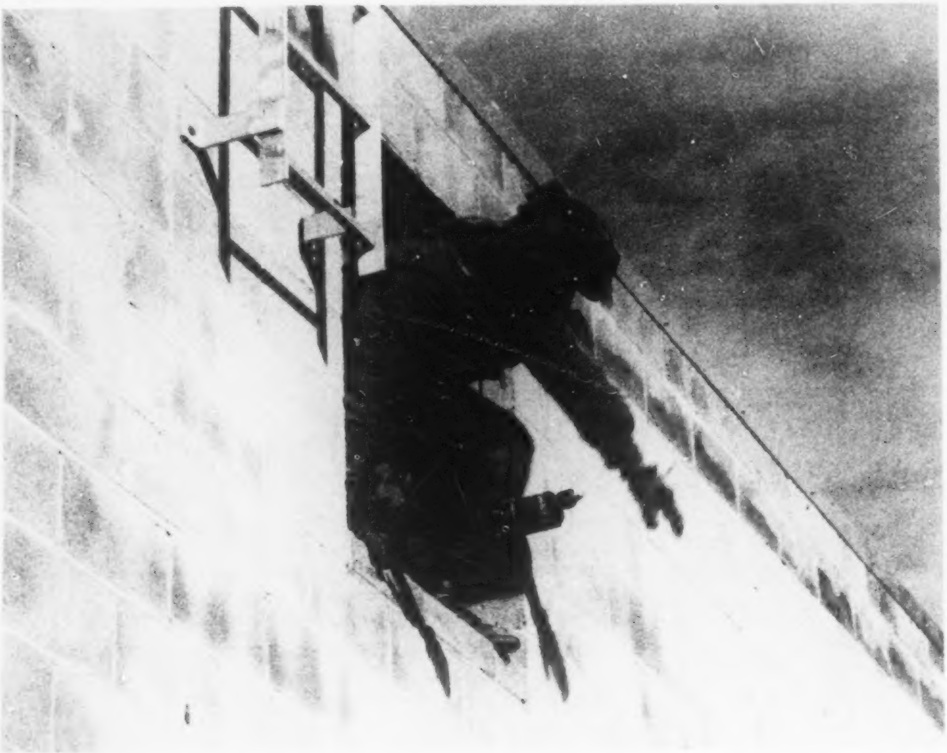
Beyond the recruit phase, we have developed a comprehensive system of training which is designed to achieve an effective combined-arms combat team on the battlefield.

Figure II-5
Locations of Exercises/ Operations Conducted by USMC Deployed Forces



The focus of our training is on the Marine rifleman, the man on the ground who must physically seize the objective. In order to increase the combined efforts of small infantry units, we have established a School of Infantry which provides formal skill progression training for our infantry squad leaders and platoon sergeants. Eight hundred staff noncommissioned officers (SNCO's) and noncommissioned officers (NCO's) are scheduled to attend this training during 1987. This training will help bridge the experience gap for these Marines and consequently be of great value to their platoons and squads. It is the effective, small unit that serves as the building block for our forces.

Figure II-6
Officer Student
Participating in Training



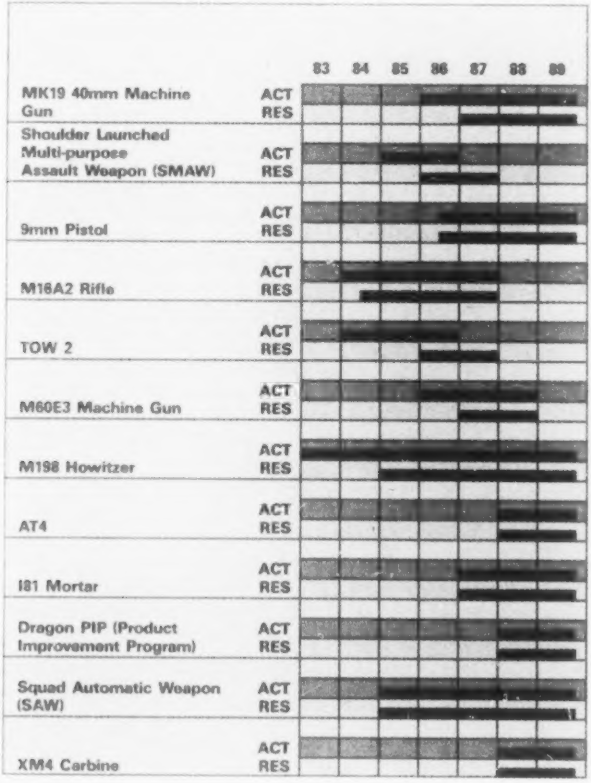
On the aviation side, our Marine Aviation Weapons and Tactics Training Program (WTTP) aids effective air support for the ground forces. This program trains selected aircrews throughout the Marine Corps in the most current threat tactics and weapons systems as well as refines the use of our own. Upon return to the Fleet Marine Forces, these aircrews share their knowledge with their squadrons.

Our combined-arms training culminates at the Marine Air-Ground Combat Center, Twentynine Palms, California. Here we conduct live-fire combined-arms training. Units are able to employ their weapons systems and equipment, and test logistical systems in an intense operational scenario. This realistic simulation of combat provides Marines the opportunity to perform in a battlefield environment (Figure II-7).

Figure II-7
Tank-Infantry Team in Combined-Arms Exercise

While world events are everchanging, our missions remain constant. The means with which we execute our missions, therefore, must be regularly assessed and revised to ensure that we are able to counter the threat. We have, therefore, sought to upgrade our weapons and equipment relative to this threat.

Figure II-8
Weapons Modernization



The ongoing modernization of the weapons within the Marine division, both Active and Reserve, is designed to counter and overcome the increasing range and lethality of the Soviet Union's weapons systems. The progress of this modernization is displayed in Figure II-8.

Modernization also includes a number of aviation programs which are designed to enhance air support for our ground forces. Major programs are detailed in Figure 11-9.

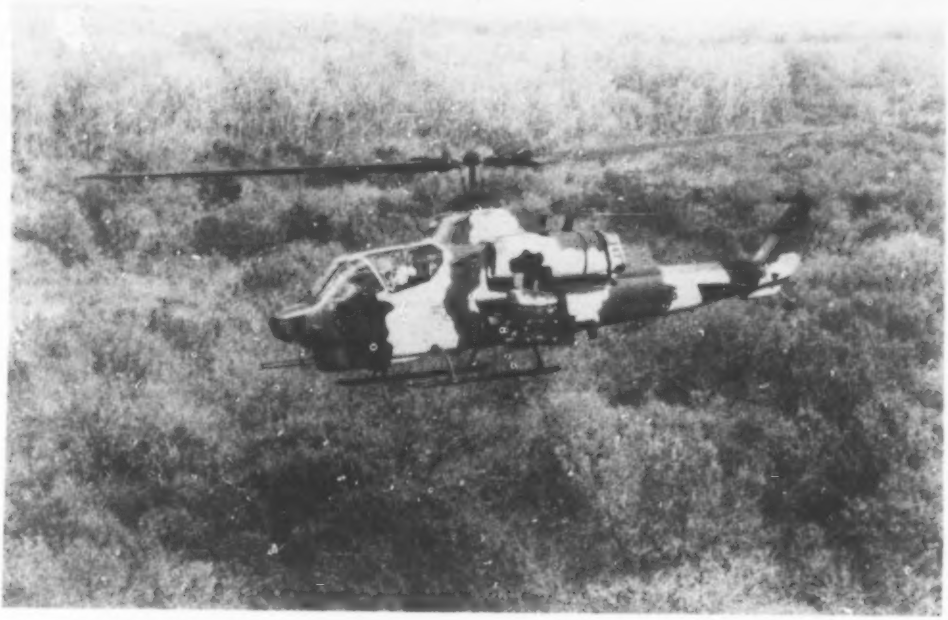
The Marine Corps attack helicopter force continues to fulfill a variety of supporting roles for the Marine Air-Ground team as it bridges the gap between the capabilities of other air and ground components. For the Marine Corps, this vital link is fulfilled by the AH-IJ, AH-IT, and AH-IW attack helicopters.

Figure II-9
Aviation Modernization

	Replaces	Initial Operational Capability	Mission
F/A-18	F-4	1981	Air-to-air/Air-to-ground
	OA-4		Air-to-ground/Supporting Arms Control
	RF-4		Reconnaissance
	TA-4		Tactical Air Control
AV-8B	AV-8A AV-8C A-4M	1985	Air-to-ground
A-6F	A-6E	1993	All Weather Attack Deep Interdiction
EA-6B	EA-6A	1977	Electronic Warfare
MV-22	CH-46E	1991	Assault Support: Troop Transport
CH-53E	CH-53A CH-53D	1981	Assault Support: Heavy Cargo Lift
AH-1W	AH-1J/T	1986	Anti-Armor Armed Escort Fire Support Supporting Arms Control Reconnaissance
OV-10D	OV-10A	1981	Supporting Arms Control
TAOM	AN/TYQ-2 AN/TYQ-3A	1991	Anti-Air Warfare Control
IDASC	AN/TSQ-122	1987	Close Air Support Control Assault Support Control
ATACC		1992	Aviation Combat Element Command/Control

The most recent introduction of the AH-IW (Figure II-10) provides a unique opportunity to not only modernize the attack helicopter force with a most capable aircraft, but to standardize the force as well. Our request for 34 additional AH-IW's in FY88/89 represents those aircraft required to sustain our force levels to the mid-1990's and, equally important, equip the attack helicopter training squadron with the same aircraft assigned to our operating forces. This will effectively eliminate redundancy in aircrew and maintenance personnel training, provide aircraft uniformity among the Active Force, eliminate existing shortfalls in the Reserve Force, and reduce logistical overhead.

Figure II-10
AH-1W



The existing light attack force comprised of the AV-8A/C and A-4M is gradually being modernized by the AV-8B, a second generation V/STOL attack aircraft.

In January 1987, the first AV-8B detachment deployed aboard amphibious shipping. As an integral part of the deployed Marine Amphibious Unit, the AV-8B (Figure II-11) will blend its unique close air support capabilities with other embarked aviation units in support of forward deployed Marine forces. In this manner, the AV-8B best fulfills its promise of rapid and responsive close air support, and expands the range of supporting arms alternatives available to the air-ground commander.

The Marine Corps' 12 fighter/attack squadrons continue modernization from the venerable F-4 to the impressively flexible and reliable F/A-18 (Figure II-12). The F/A-18 introduction has been extraordinarily impressive and characterized by high reliability rates, low attrition, and performance unmatched in its versatility and effectiveness.

As we steadily increase our F/A-18 presence within the United States, the F/A-18 is likewise being deployed to support our overseas commitments. This past spring, two Marine F/A-18 squadrons returned from an extended deployment aboard the USS CORAL SEA and participation in the Gulf of Sidra operations.

While aircraft modernization has progressed at a steady pace, many factors have precluded an all encompassing approach. Indeed, aircraft modernization must often adopt a prudent course and a more deliberate pace to avoid unnecessary force turbulence and a commensurate drop in readiness. The impending challenge posed by potential adversaries often demands modifications to existing equipment. As circumstances arise which require improvement of existing equipment to enhance safety, reliability, and maintainability, we are often compelled to adopt a more modest approach in the form of modification to ensure the original capability is preserved. My caution, today, is to avoid the historical tendency to impose severe reductions in these less visible, but significantly important, aircraft modification programs.

Figure II-11
AV-8B Harrier

Figure II-12
F/A-18's

A comprehensive modernization effort has focused on the maintenance of a secure and reliable command and control system vital to fully integrating and capitalizing on the combined capabilities of the air-ground team. Exploiting modern technology imposes challenges, but is essential if command and control systems are to remain abreast of advancing technology and potential adversary capabilities. Tactical Air Operations Module (TAOM) replaces an archaic system which is over 20 years old with a survivable, responsive, and accurate system which fully integrates the total anti-air potential of the Marine Air-Ground Task Force. The TAOM program, as a joint-service venture with the Air Force, promotes interoperability and reduces unit cost.

Improved Direct Air Support Center (IDASC) was born out of a pressing need to replace equipment near obsolescence and logistically unsupportable in order to preserve the ability to integrate the supporting arms we now possess. The Advanced Tactical Air Command Center (ATACC) is intended to replace equipment of 1950's technology and retain for the air commander the ability to judiciously employ aviation assets. Finally, a variety of decoys and modification efforts ensure equipment survivability in the increasingly demanding electronic warfare environment.

Figure II-13
Command, Control, and Communications Enhancements

Position Location Reporting System (PLRS)	■ **Provides automatic, accurate, real-time relative location identification of friendly forces, and limited burst communications capability**
Marine Integrated Fire and Air Support System (MIFASS)	■ **Provides automation for the integration of supporting arms with the ground combat element scheme of maneuver**
NAVSTAR Global Positioning System (GPS)	■ **Provides man-transportable, space-based precise radio navigation location and exact timing information anywhere in the world**
Tactical Combat Operations System (TCO)	■ **Provides automated support to Marine Air-Ground Task Force commander and element commanders in formulating, coordinating, and disseminating combat plans and tactical information**
Unit Level Circuit Switch (ULCS)	■ **Provides fast, secure, automatic digital switching of both voice and data using fiber optic transmission cables and multichannel radio links. Also provides for interoperability with other service switches**
Satellite Communications (SATCOM)	■ **Provides long-haul, terrain-independent communications between the MAGTF commander, his element commanders, and adjacent/higher commanders during all phases of land, tactical air, and amphibious operations ranging from single-Service crisis intervention to joint-Service combat**

Ongoing modernization must extend to facilities, too. The average age of our buildings is 32 years. Our combined-arms force improvements need the concomitant modernized maintenance for operational facilities to realize the most effective use of these new weapons systems. These modernization efforts are progressing well and we will continue to make headway in this vital supporting program. As in all areas, we must be able to control our forces and wisely employ all of our assets.

Command and control are essential to coordinating the efforts of a combined-arms force. These functions facilitate the integration of fire and maneuver, but also maximize the capabilities of a synergistic Marine Air-Ground Task Force. Systems which are being developed and produced to support this effort are shown in Figure II-13.

The Total Force concept is rounded out by our Reserve Forces. Many of our exercises include Selected Marine Corps Reserves (SMCR) in order to enhance the readiness of our Reserve Component and are in consonance with the anticipated employment role of the Marine Corps Reserve. The Reserve Total Force contributions to structure, manpower, and organizations are depicted at Figures II-14 and II-15.

While we have allocated significant resources for the long list of modernization programs I have just covered, we have not neglected the most important component of the Marine Corps--Marines and their families.

Figure II-14
Reserve Program

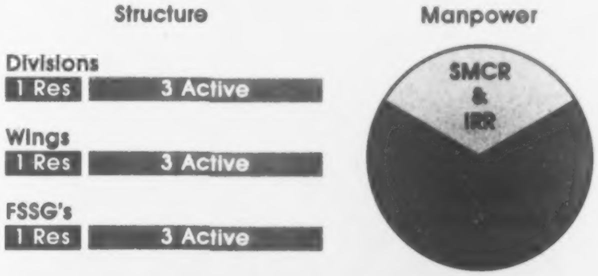
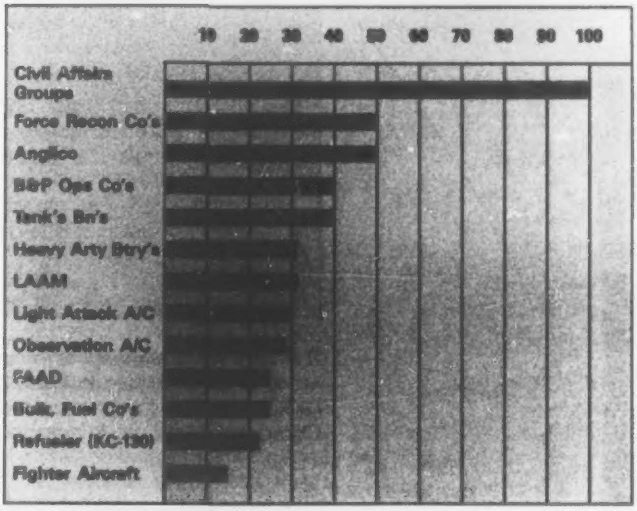


Figure II-15
Total Force Contributions



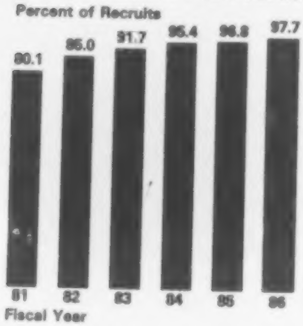


Figure II-16
High School Graduates

Today's Marines remain superb. The young men and women who volunteer to become Marines are the best ever. As illustrated in Figures II-16 and II-17, the Corps is attracting some of the brightest young people in our history. Over 97 percent of them are high school graduates and 99.8 percent scored in the upper three categories of the AFQT.

For now, as these numbers depict, the quality is still out there. The hard work of a dedicated recruiting force (Figure II-18) has kept qualified young people coming in our direction. We cannot rest on our laurels, however. Recruiting and maintaining the volunteer force of the late 1980's and early 1990's will present our recruiters with their toughest challenge yet. The declining military age population, their lack of propensity to enlist, and youth employment prospects indicate that the mission will only get rougher.

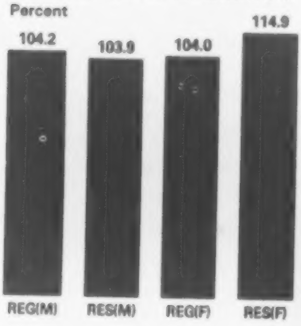


Figure II-17
USMC FY86
Enlistment Attainment

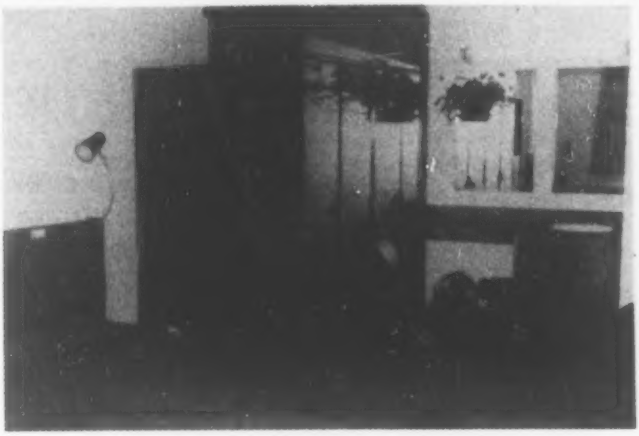
The morale and esprit of our Marines are outstanding. This is caused, in part, by our quality-of-life programs. Most of this is just plain, old-fashioned leadership. It embodies the principle "taking care of your own" through the provision of material and service programs which enhance the individual well-being and have a positive effect on the attitudes of Marines and family members. The goal of these programs is to positively influence the self-esteem of our Marines so they realize who they are and what they do is important. We seek quality-of-life improvements in both on-duty and off-duty environments.

Figure II-18
Two Prospective Marines
Talk with Our Recruiters

We seek to provide Marines with adequate working conditions ranging from heated work spaces in a motor pool to the best possible training facilities for the development of their field skills. From an off-duty perspective, quality-of-life means adequate housing which provides for the needs of a Marine and his or her family. Housing should be suitable for the Marine's relative position within the military society and American society as a whole. Services must be complete and responsive to the needs of the family. These essential housing needs are being satisfied as we continue to program about one-third of our military construction funds to build bachelor housing and related facilities.

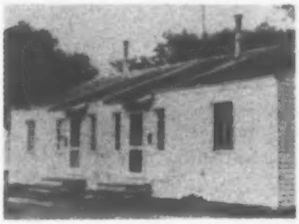
Figure II-19 is a photo of a Bachelor Enlisted Quarters (BEQ) room. We have 78,140 adequate living spaces for bachelor personnel, up from 59,700 in FY84; however, we still have a large deficit. Our target date for eliminating deficiencies is the mid-1990's.

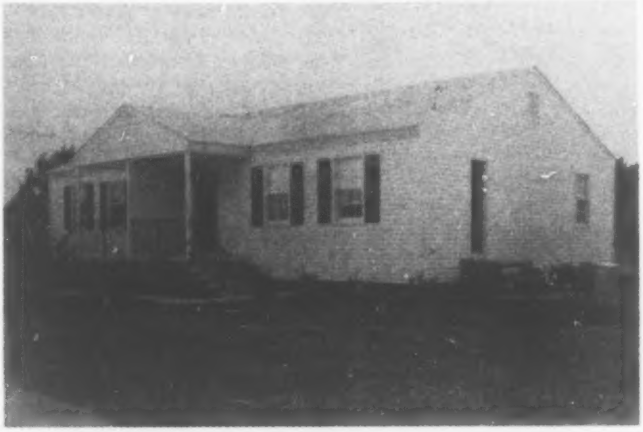
Figure II-19
Interior of a BEQ Room



In a similar manner, the quality of family housing has been greatly improved. About 8,500 of the Marine Corp's 21,000 units of family housing have been renovated under the whole-housing rehabilitation program, with another 4,500 units programmed for renovation in the next 5 years.

Figure II-20
Before Renovation
Bibout Village, MCRD,
Parris Island

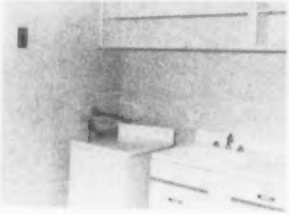


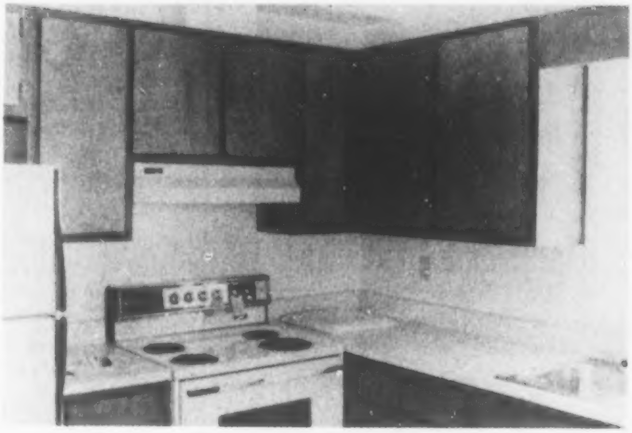


After Renovation

Figures II-20 and II-21 illustrate the dramatic before and after transformation in a typical whole-house rehabilitation.

Figure II-21
Kitchen-Before Renovation



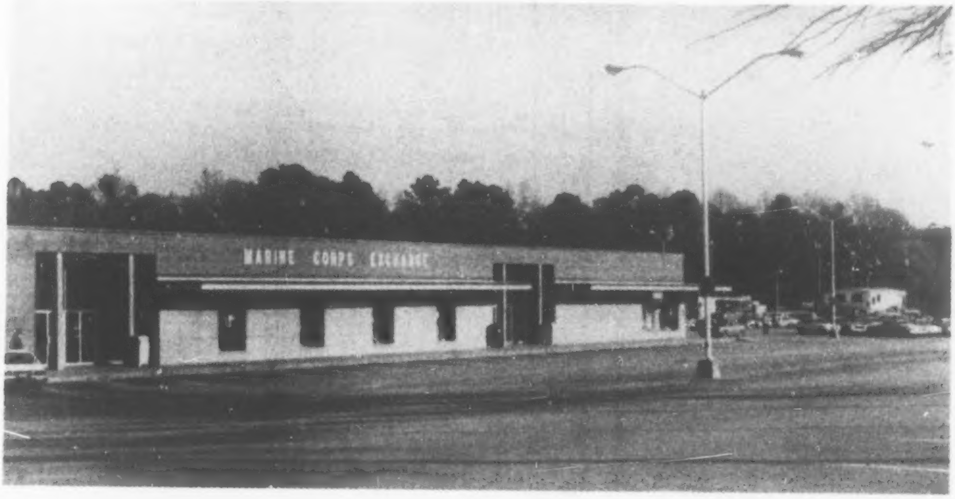


Kitchen-After Renovation

For the present, my number one priority is the Southern California area where I hope to alleviate, if not eliminate, the housing shortage. We are also exploring alternatives to the traditional approaches to military construction of family housing, such as contractor-built/government-leased housing. One such project for 200 housing units has already been approved and awarded for our base at Twentynine Palms, California. We plan to have our Marines living in these houses by the fall of 1987. We are also building additional spaces at several existing mobile home parks as well as building new parks on some installations. Meanwhile, our base housing referral offices continually survey the local housing market so they can advise newly arrived Marines about adequate and affordable housing in the area.

The services we seek to provide are those which compensate for the difficulties and demands of military service. Marines and their families have come to regard their exchanges and commissaries as an integral part of service life. The significant savings achieved by our patrons have become a key part of our total compensation package. I am, therefore, committed to providing quality goods and services at the lowest prices consistent with our regulations. A photo of the MCB, Camp Lejeune, North Carolina exchange is at Figure II-22.

Figure II-22



We ask a lot of our Marines today, including frequent separation from their families, but it comes with the profession. A recent DoD survey of military personnel found that 66 percent of the officers and 63 percent of the enlisted Marines spent more than 30 days away from their families during the preceding year. It is our duty, therefore, to provide the institutional support to accommodate this facet of service life.

One of our most successful institutional supports is the Family Service Center (FSC). We now have 19 FSC's providing quality personal services, deployment materials, and support programs, which greatly enhance our ability to prepare Marines and families for recurring deployments and separations. Last year, a significantly smaller number of Marines returned prematurely from deployments and overseas assignments because of family problems. The excellent screening and predeployment programs offered by the FSC's contributed greatly to increased readiness and savings in scarce travel funds. The centers have provided needed assistance to over 144,000 clients this past year. One of the centers is shown at Figure II-23. Additionally, the Navy Relief Ombudsman Program assists Marines and their families.

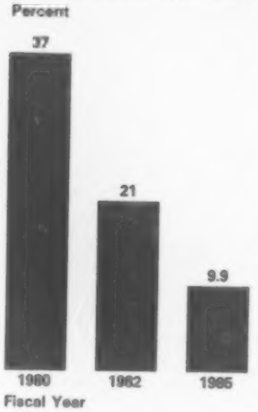
FAMILY
SERVICE
CENTER

Figure II-23
MCRD, San Diego Family Service Center

Adjunct to the Family Service Centers is one of our most innovative and valuable programs—the Employment Resource Center (ERC). We now have opened 12 ERC's that are providing services to hundreds of spouses, and to separating or retiring Marines every week. Offering career counseling, job referral, workshops, and other services, four more ERC's will open during 1987 to complete the implementation of the program at our major bases and stations.

Another facet of quality-of-life is an environment free of drugs. Marines are entitled to such an environment, and my goal has been to provide it. Great progress has been made in this area

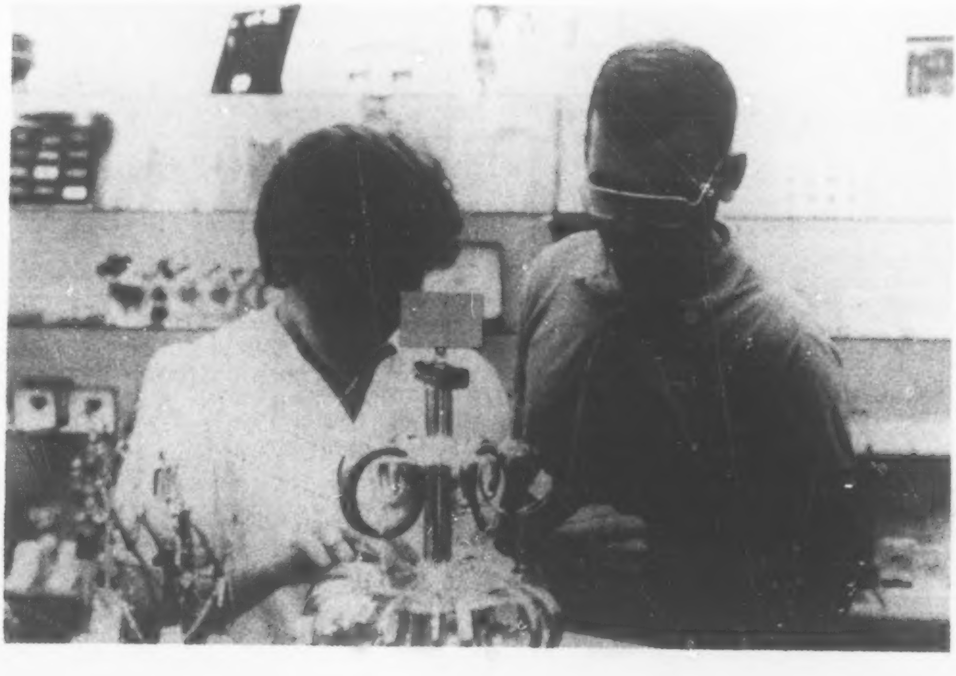
Figure II-24
Trends in any Drug Use
Past 30 Days. (1980-1985)



(Figure II-24). This 1985 DoD Worldwide Survey shows a continuing decline in drug use within the Marine Corps. Drug- or alcohol-dependent Marines are being identified, treated, and, in most cases, restored to full duty. Those not responding to treatment are processed for separation. During FY86, 1,233 Marines received formal, residential treatment and returned to productive duty.

The achievements we have made in the quality-of-life of our Marines are truly impressive. During a recent leave I had the opportunity to evaluate the progress of our quality-of-life programs. I took a ride around Camp Lejeune in an unmarked car. It was a drive down memory lane; one during which I compared the Camp Lejeune of 1951, when I arrived as a young lieutenant, with the Camp Lejeune of today. Frankly, there is no comparison. The troops now live in air-conditioned barracks, most in two- and three-man rooms, and some of the finest fitness centers are readily available for their use and are usually filled to capacity. The family quarters are air-conditioned and well-maintained with superb recreational facilities nearby. There is a new temporary lodging facility, a new hospital, a completely renovated Post Exchange, and the troops have decent working facilities. That's the way it should be. If you're going to ask young Americans to lay down their lives for their Country, then we should treat them as first-class citizens.

Marine Couple Shopping
at an Exchange



III

A FUTURE OF INNOVATION

In the future, the challenges to this Nation's security will go beyond the threat posed by a superpower. They will also include an increasingly volatile Third World. The militarization of these Nations often provides terrorists with the means to directly threaten U.S. interests. On a globe which is three-fourths water, there still is no way a significant number of U.S. ground forces can be committed against the Nation's enemies on a hostile shore other than through use of the sea. Consequently, we must ensure that power projection for this nation is always feasible through the application of technology in tomorrow's amphibious operation. It is this operation that we refer to as the "over-the-horizon concept." We will be able to begin the assault from over 200 miles offshore.

In combat the more powerful assailant has not always prevailed. More often the ingredients of victory have been initiative and resourcefulness. These qualities have been part of the Marine way of life. The prodigious contributions of the Marine Corps to modern warfare have been far out of proportion for such a small Service. Marine officers developed the highly specialized amphibious assault two decades before World War II. Because of their foresight, America was able to project thousands of men onto hostile shores in WW II and Korea. From the amphibious assault grew such innovations as the amphibious assault tractor. Our development of the helicopter, which had its roots in the Pitcairn autogiro used in the 1930's, has enabled this Nation to conduct vertical assaults. Other developments such as close air support, and the employment of vertical take-off and landing aircraft are largely the results of Marine efforts to better apply technology for victory on the battlefield.

Resourcefulness is demonstrated in our acquisition of weapons and equipment. The objective in this area has been to put effective systems into the hands of our Marines with the minimum amount of research and development time. The Shoulder-Launched Multipurpose Assault Weapon (SMAW), currently in our inventory, serves as an example of our acquisition process. In searching for a "bunker-buster", we bought a system off the commercial market and made minor modifications to it. We incorporated an Israeli rocket, a British Enfield rifle barrel, and a commercial spotting scope to develop the present system. The imaginative thinking of our Marines provided us with an effective weapon in the shortest time possible at minimum cost.

I would also like to emphasize that the successful application of technology is not limited to the acquisition of new weapons and equipment. It also means the continual evolution of tactics and operations to accommodate the changes of technology. This is happening in our combat operations and can be witnessed in our exercises. As an example of these efforts, we are presently using the existing technologies to achieve an even closer relationship between our ground and aviation forces to improve close air support. Our expeditionary Marine Air Command and Control System provides us the capability to deploy an automated tactical air operations center anywhere in the world to link together our air and ground forces and to link with systems from the other Services, such as an AWACS aircraft, an AEGIS cruiser, or an Army air defense unit.

This will reduce the amount of time required to provide Marine close air support as well as increase the synergistic effect of our forces. In this ability, we are unique!

Fundamental to our Nation's ability to project power in the future is amphibious shipping. Amphibious ships enable us to seize beachheads. The Navy's planned ship construction for FY88 procures the third WASP-Class LHD (Figure III-1)--the keystone of our lift program--and the first of the cargo variants of the WHIDBEY ISLAND Class LSD's. The Navy will authorize two more LHD's and four more LSD-41 cargo variants in the next 5 years. We are making progress toward meeting our lift objectives.

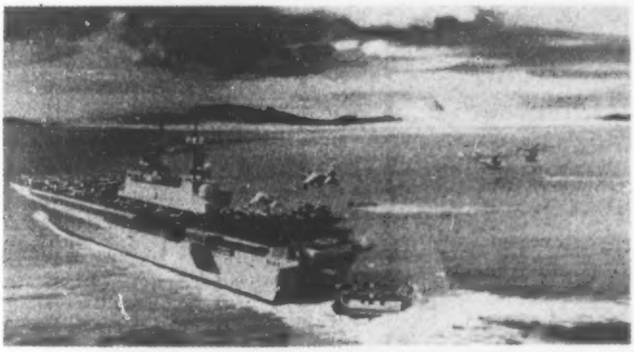


Figure III-1
USS Wasp LHD-1

In viewing our responsibilities to the nation we recognize that our missions remain the same. The over-the-horizon concept will enable us to land where the enemy is not and build a formidable combat power.

Pivotal to the concept of over-the-horizon operations is the continued, timely development and procurement of the MV-22 Osprey. Not since the helicopter, has a single aviation initiative promised as profound an effect on future operations of your Marines. The range, speed, and payload of the MV-22 far surpass present day capabilities, and offer the battlefield commander extraordinary alternatives in every conceivable operation. When an amphibious task force is 24 hours off an enemy's coast, it can conduct an amphibious assault anywhere along a coastline equal in distance to the distance from New York City to Cape Canaveral (Figure III-2).

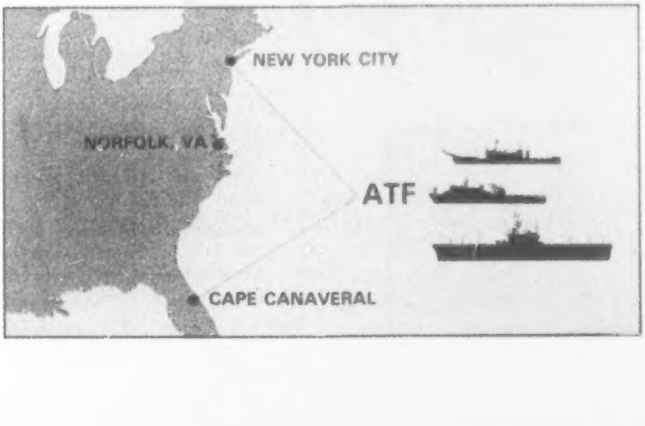
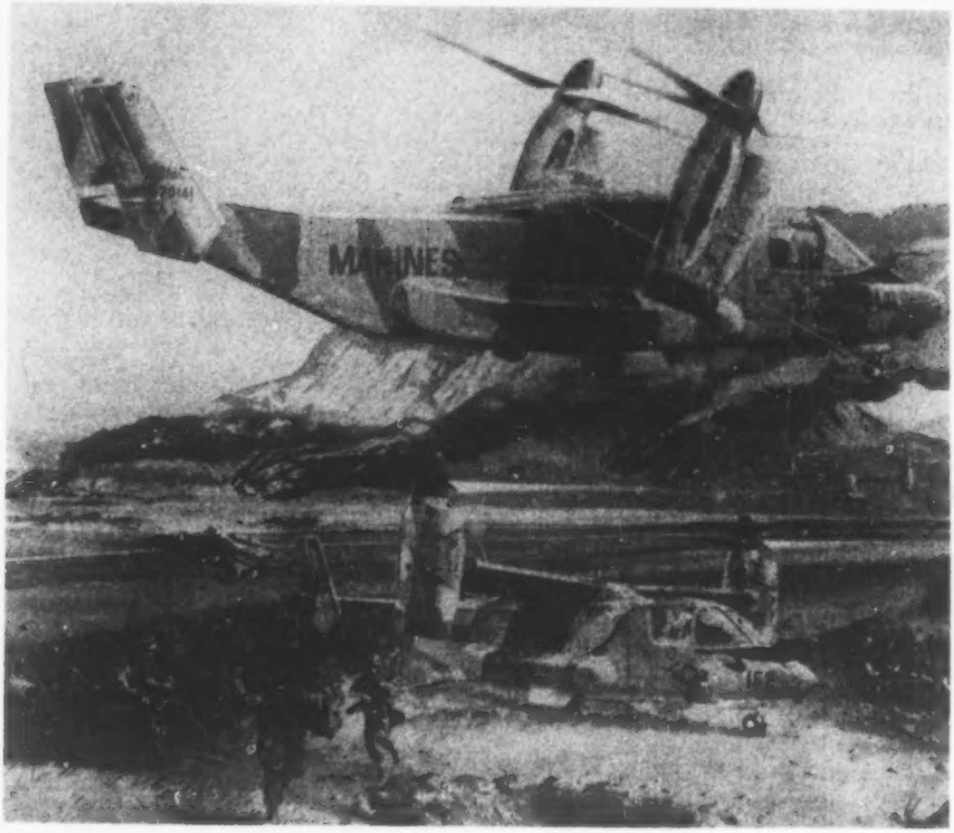


Figure III-2
Amphibious Strike Capability

Consequently, our ability to conduct an amphibious assault at any point along a broad coast makes it increasingly difficult for an enemy to defend. While strategic mobility is inherent in any amphibious operation, we are significantly enhancing our tactical mobility so that our forces can land faster than our enemy can respond. The most impressive improvement in mobility will be made by the MV-22 "Osprey" (Figure III-3). The increased capability of this remarkable aircraft will completely change our thinking with regard to amphibious operations.

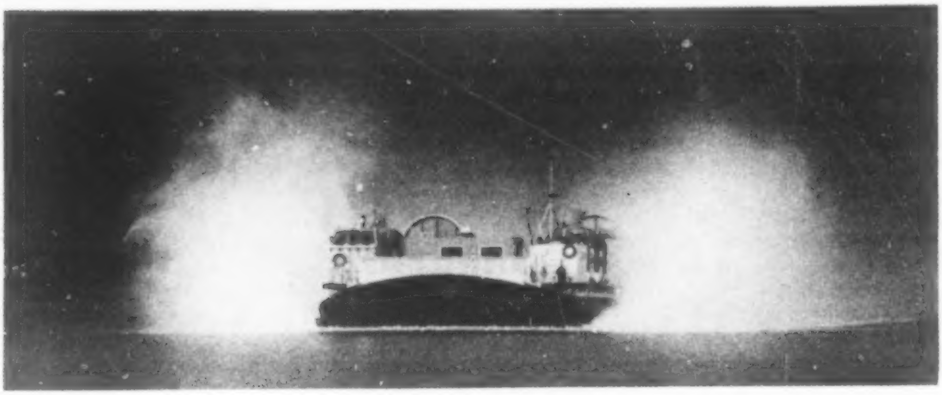
Figure III-3
MV-22 "Osprey"



The Osprey will be able to launch from 200 miles out. The range of this aircraft will require an enemy to not only defend a longer coastline but also in much greater depth and breadth, thereby depleting his resources and permitting his defeat in detail. As the key to Marine employment in the 1990's, the Osprey remains the Marine Corps' highest priority. The technology of the Landing Craft Air-Cushion (LCAC) (Figure III-4) will make the operation almost independent of a coast's hydrography and will provide access to almost 70 percent of the world's coastline as compared to 18 percent today. Using the LCAC, 60-ton loads can be carried from over-the-horizon. The speed of this craft is in excess of 40 knots and provides our force with not only improved mobility but also to some degree, greater security. The faster moving force is always the harder to hit.

The use of the LCAC has become a reality for our forces, and the first operational LCAC unit, Assault Craft Unit Five, has been activated at Camp Pendleton, California. The LCAC is a Navy ship construction program in which we have actively participated. We are most grateful to our sister Service for the efforts in this area, and this program is only further evidence that the Marine Corps' future is tied to the Navy's.

Figure III-4
Landing Craft Air Cushion



In conducting an amphibious operation (Figure III-5), we make every effort to land on unopposed beaches. Because a defended beach is always a possibility, we are examining a number of concepts which will enhance the performance and survivability of our amphibious assault vehicles in the future. The Marine Corps will continue to adapt to the changing battlefield and the challenge of tomorrow. The future of the Marine Corps, as a capable and cost-effective force, lies in the determined efforts of Marines. It must be recognized, however, that these objectives cannot be accomplished alone. I seek your assistance in alleviating conditions which may adversely affect the Corps.

Figure III-5
Amphibious Training

IV

CONCERNS FOR THE FUTURE

As I submit this, my final report, I do so with several concerns for the future of our Marine Corps.

Department of Defense Reorganization Act of 1986

My first concern is the implementation of two key provisions of the Department of Defense Reorganization Act of 1986.

I strongly urge the Congress to conduct an early and comprehensive review of Title IV, Joint Officer Personnel Policy. I believe that if this Title is implemented, as written, it could adversely impact upon the morale and effectiveness of our officer corps and ultimately create a new class of "Mandarins"–Joint Staff Specialists skilled in the bureaucratic ways of higher headquarters, but who will have little opportunity for critical operational experience in the field with troops. While I do not believe that this is the intent of the Congress, it could, nevertheless, be the end result.

My second concern is Title V, Military Departments, specifically sections of Chapters 506 and 507.

Subparagraph (b), Section 5042, chapter 506, states:

"(b) Under the authority, direction, and control of the Secretary of the Navy, the Headquarters, Marine Corps shall-- (1) subject to subsections (c) and (d) of section 5014 of this title, prepare for such employment of the Marine Corps, and for such recruiting, organizing, supplying, equipping (including research and development), training, servicing, mobilizing, demobilizing, administering, and maintaining of the Marine Corps, as will assist in the execution of any power, duty, or function of the Secretary or the Commandant; (2) investigate and report upon the efficiency of the Marine Corps and its preparation to support military operations by combatant commanders; (3) prepare detailed instructions for the execution of approved plans and supervise the execution of those plans and instructions; (4) as directed by the Secretary or the Commandant, coordinate the actions of organizations of the Marine Corps; and (5) perform such other duties, not otherwise assigned by law, as may be prescribed by the Secretary."

Subparagraphs (c)(1) and (c)(2), Section 5014, Chapter 507, on the other hand, state:

"(c)(1) The Office of the Secretary of the Navy shall have sole responsibility within the Office of the Secretary of the Navy, the Office of the Chief of Naval Operations, and the Headquarters, Marine Corps, for the following functions: (A) Acquisition. (B) Auditing. (C) Comptroller (including financial management). (D) Information Management. (E) Inspector General. (F) Legislative Affairs. (G) Public Affairs. (2) The Secretary of the Navy shall establish or designate a single office or other entity within the Office of the Secretary of the Navy to conduct each function specified in paragraph (1). No

office or other entity may be established or designated within the Office of the Chief of Naval Operations or the Headquarters, Marine Corps, to conduct any of the functions specified in paragraph (1)."

And, finally, Subparagraph (c)(4), Section 5014, Chapter 507, states:

*"(4) The vesting in the Office of the Secretary of the Navy of the responsibility for the conduct of a function specified in paragraph (1) does not preclude other elements of the executive part of the Department of the Navy (including the Office of the Chief of Naval Operations and the Head-*quarters, Marine Corps) from providing advice or assistance to the Chief of Naval Operations and the Commandant of the Marine Corps or otherwise participating in that function within the executive part of the Department under the direction of the office assigned responsibility for that function in the Office of the Secretary of the Navy."

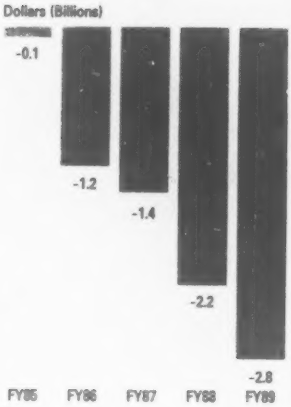
From the foregoing, it should be obvious that the relationship between the Commandant of the Marine Corps' authority and responsibility is unclear. Moreover, the principal drafters of the Defense Reorganization Act of 1986 recognized another aspect of my concern. In their report which accompanied the Bill, both the Senate and House Conferees stated, ". . . that the consolidation of functions . . . will pose unique problems for the Department of the Navy because of the existence of two separate Armed Forces." And, further that:

> The conferees intend that the performance of these functions should fully recognize, as the Commandant considers appropriate, the particular interests of the Marine Corps and should fully enable the Commandant to represent those interests in the same manner as the other Chiefs of Service are able to represent the particular interests of their Armed Service.

These concerns were reinforced on the floor of the Senate by Senator Sam Nunn during the introduction of the Defense Reorganization Act of 1986, when he asked that the Congress "be alerted early on" should problems arise in this regard that may warrant changes; and by Senator John Glenn, who cautioned, "I do not want to see my future Commandant hamstrung in his ability to keep our readiness force truly ready."

If, during implementation, it becomes apparent that the integrity and viability of the Marine Corps as a separate Service is jeopardized, or that the position of Commandant suffers from an imbalance between authority and responsibility, it is my intention to seek appropriate relief from the Congress. I know that you would expect and demand such action. The future of the Marine Corps I have served all of my adult life is far too important to our Nation for me to do otherwise.

Potential Effects of Reduced Defense Funding



Due in large measure to congressional reductions to the FY84 and subsequent Presidential budget submissions, the Marine Corps has had to make corresponding outyear program reductions. The graph at Figure IV-1 displays the cumulative effect of these outyear reductions to the five-year program which was in effect when I became Commandant of the Marine Corps on 1 July 1983. The FY85, FY86, and FY87 columns reflect the differences between the 1983 program and what was finally authorized and appropriated by Congress. The FY88 and FY89 columns reflect the differences between the 1983 program and the requests contained in the January 1987 President's budget submission. These figures show an additive five-year reduction of $7.7 billion in total obligational authority (TOA) for the Marine Corps when compared with levels programmed in May 1983. If pay raises and entitlements, normally absorbed in the approved funding, were added, the total programmatic five-year reduction would be approximately $9.7 billion.

Needless to say, over time, these budget constraints adversely impact on force structure, modernization, readiness, and sustainability. Protection of readiness, however, has been my primary focus.

In a manpower-intensive organization, a declining budget will also impact on our ability to man the structure necessary to support modernization.

Over the years, one of our largest investments has been in quality Marines. Our successful effort toward this goal has been time and resource consuming, one which cannot be easily or instantly repaired if abandoned due to fiscal constraints. Quality can compensate for fewer numbers, but only for so long. At some point, even quality will be overwhelmed by the demands placed upon it.

At the top of my list for sustaining the investment in our Marines is pay--fair compensation for dedicated and professional performance. Past congressional support for pay and entitlements brought about substantial improvements, achieving near comparability with the private sector through pay raises in FY81 and FY82. Since then, however, this relative comparability has diminished. Including the 3.0 percent pay raise for FY87, the gap between military and private sector wage levels continues to widen. I urge the Congress to address the vital issue of pay comparability as a matter of highest priority.

Access to quality health care remains a major concern of our Marines. The growing number of Marine family members continues to place additional demands on the uniformed health care system. Continued efforts to establish NAVCARE clinics, CHAMPUS reform, and realignment of primary health care providers will help alleviate this problem somewhat, but your help is needed in order to provide quality health care to Marines and their families.

We must never lose sight of the importance of quality-of-life programs which contribute to improved morale, increased retention, and, ultimately, combat readiness. Continued forward movement in this area must be maintained to avoid unnecessary personnel losses that would result from reductions in these programs. The cost of recruiting and training new Marines in a dwindling manpower market far outweighs the relatively small amount spent on quality-of-life programs.

During times of peace there is always a very strong temptation to reduce defense expenditures. In my professional view, the level of defense spending should be dictated by the actual threat, and what is required to preserve peace and stability in an uncertain world. With that said, however, I also fully understand the importance of other programs to the health and welfare of our great Nation. Today, testifying before you in my present capacity as a senior military advisor to both the President and the Congress, I must in all good conscience state my belief that deep cuts in levels of spending for defense will surely result in greatly increased risk to our national security. The Constitution, which this year is 200 years old, gives Congress the power to, "provide for the common Defence and general welfare of the United States." My expressions of concern over the potential impacts of reduced defense funding are meant to assist the Congress as it executes these awesome constitutional responsibilities.

V

CONCLUSION

The security of this nation requires continual vigilance and foresight on the part of those tasked with this responsibility. When conditions arise which may be detrimental to this security, a military leader is obligated to speak up. It is for this reason that I have made my concerns known regarding the direction of recent legislation and the possible implications for the Marine Corps. Despite these concerns, I remain optimistic because it is the exchange of professional opinions between the statesman and the professional warrior which ensures the most effective policy for national security.

After 37 years of service as a Marine, I give you a Marine Corps which is more ready now than it has ever been in our history. It is a force which is capable of being rapidly projected into distant regions of the world for the purpose of resolving conflict on foreign soil rather than our own. Its versatility enables this Nation to meet almost any challenge across the spectrum of conflict and yet provides the most cost-effective service possible. Such achievements can only be attributed to Marines who have unselfishly given of themselves and whose efforts hold promise of even greater contributions for tomorrow.

In a world in which the distinction between war and peace will become increasingly obscure, the Marine Corps will play an even greater role in national security. Your Marine Corps will continue to meet its responsibilities by means of progressive thinking which has been characteristic throughout its history. You can be certain that the Corps is capable of meeting the demands of tomorrow's battlefield.

The proposed request (Figure V-1), like those of the past, is well-considered and austere. The Marine Corps must have your support in order to remain this country's premier force-in-readiness.

Figure V-1

Appropriation Title	FY87	FY88	FY89
[illegible]	5,446.9	5,540.0	5,534.3
[illegible]	[illegible]	294.7	302.8
[illegible]	[illegible]	1,918.4	1,939.2
[illegible]	[illegible]	73.4	85.2
[illegible]	[illegible]	[illegible]	1,846.8
	[illegible]	*	*

[illegible] merged with the Navy Stock [illegible]

Upon my departure this summer from the Active ranks, I will entrust to you a Corps which is truly a national asset. It is my most heartfelt desire that you remember that it is the individual Marine that must have your support. I thank you, and I am confident that you will continue to provide the backing that is so vital.

SEMPER FIDELIS!

The Marine
Combat Team

NEED FOR BUDGETARY STABILITY

Chairman STENNIS. Mr. Secretary, do you have a thought on anything that you want to cover?

Secretary LEHMAN. No, sir.

Chairman STENNIS. Admiral?

Admiral TROST. One final comment, if I may.

I think that all of us recognizing the press, or the requirement for reduction of budget deficits, recognize the importance of a strong economy to our country.

You've heard us express concern about cuts which are being proposed. And I would simply note that we could all do a far better job on a continuing basis if we had a greater level of budgetary stability.

And we simply can't sustain the kinds of strengths that we have built up in recent years if we face cuts or unpredictability in the assets that are available to us.

I know that you fully recognize that fact. But I just wanted to state it for the record.

We'd like to do the job as well as we possibly can, but we do need that support.

Chairman STENNIS. All right. Thank you. That's another contribution you've made.

CONCLUDING REMARKS OF CHAIRMAN STENNIS

Senator Johnston of Louisiana and Senator Byrd of West Virginia have each requested that certain questions that they have submitted be answered for the record.

The Chair hears no objection, and it's agreed.

I think there is one thing that I want to emphasize. In a hearing like this, we may jump from pillar to post, but at the same time, there's been a great outpouring here of factual statements, of opinions by competent people.

It is worth a great deal to us. We have to march up on a firing line and answer yes or no to a roll call vote. The fun wears off of that pretty fast, especially when you're in deep water and in an uncertain situation.

But you've made a contribution this morning, and I believe in it wholeheartedly.

And I think the openness of hearings like this one is one of the courses in American history that has made our Constitution last these 200 years.

We're looking back over it now and celebrating and trying to be sure that our youth have a chance to learn the sentiments and substance of the Constitution of the United States.

And we're especially grateful to you gentlemen. One of the things that I marvel at, as I go along, is the way that the military and the civilian can find a way to get together and go marching down the lane of duty.

It's lasted these 200 years, as I've said, from a time when we were just a little group of colonies, to the time that we've grown to have 50 states with hundreds and hundreds and hundreds of square miles of territory and about 236 million people. Certainly we have a good constitutional law as a system and have carried it out on the average in an excellent fashion.

Well, I want to thank you again on behalf of the entire Congress who will be passing on these matters.

We'll be glad to have you come back any time you can, if you will. If you think of anything you have passed over, why, let us hear from you on that too.

SUBMITTED QUESTIONS

I do want to reserve the right to have certain questions that I have here included in the record for proper answers.

[The following questions were not asked at the hearing, but were submitted to the Department for response subsequent to the hearing:]

QUESTIONS SUBMITTED BY CHAIRMAN STENNIS

SECOND SOURCE AEGIS

QUESTION: Congress has directed that the Navy second source the AEGIS Weapon System. What is the current status of this effort?

ANSWER: Second sourcing of the AEGIS Weapon System is ongoing. Presently, the Navy has awarded second source qualification contracts for the Fire Control System director (Jan 1986) and Transmitter (apr 1986). Both awards were made to Unisys. In January of FY 87, competitive contracts were awarded to GE and Unisys for the fire control director/controller. It is planned that in FY 88 the fire control system transmitter will be completed.

A "Team B" request for proposal for second source of the SPY-1 transmitter, SPY-1 antenna, signal processor (option) and shipyard integration has been issued and a proposal has been received and is currently under evaluation. A second request for proposal for second source support, to be provided by RCA, has also been issued and a proposal has been received and is also undergoing Navy review. Award of these two contracts is linked, and has been delayed temporarily, pending resolution of a protest for the Team B award by ITT/Gilfillan. GAO is currently studying the protest as well a Navy and industry comments. The GAO review is expected to complete in early July, prohibiting award of these contracts until that time.

Marine Corps Security Guards

The Navy recently announced plans to reassign Marine Corps Security Forces off guard duties at Navy bases and return them to the "cutting edge." These Marine guards will be replaced by civilian employees and in some cases naval enlisted men.

Question: How many Marines will this free-up to return to troop duties?

Answer: Marines are not being taken off security duties with the Navy and returned to the "cutting edge." Under the reorganization of the Navy/Marine Corps Security Forces, Marines are being replaced by sailors or civilians at selected locations for duties not requiring the unique abilities of armed, combat-trained Marines. These Marines are being reallocated to other duties with the Marine Corps Security Forces. The number of Marines dedicated to security duties with the Navy will remain about the same.

Question: Will this save money in FY88? In the out years?

Answer: There will be no change in budget for FY88 or the out years for the Marine Corps. The Navy will have some different budgetary requirements in support of the reorganization. Marine Barracks at four locations are closing and one new Marine Corps Security Force (MCSF) Company (formerly Marine Barracks) will open. Two MCSF Battalions will be created to train, supervise, and administer the Marines and to provide increased support to Navy installations in the areas of training, leadership, and supervision.

Question: Do you feel that civilian security guards will be able to provide the same level of security?

Answer: Civilians and Navy enlisted men can provide the level of security needed for access control to Navy bases in the continental United States. Given the nature of the duty, they can provide essentially the same level of security provided by Marines.

Question: Which bases will be affected by this change in FY88?

Answer: Civilians and Navy enlisted men will replace all of the Marines at four bases which will close. These bases are Portsmouth, NH; New London, CT; Seal Beach, CA; and Fallbrook, CA. Civilians and Navy enlisted men will replace some of the Marines at ten other bases to include Charleston, SC; Earle, NJ; Yorktown, VA; Cecil Field, FL; Norfolk, VA; Alameda, CA; Bangor, WA; Concord, CA; North Island, CA; and Yokosuka, Japan.

HAWK Missile

The Marine Corps is planning a multi-year procurement of its remaining HAWK missile requirements. This is to be a firm, fixed-price contract for 2118 missiles over a four-year buy, fiscal years 1988-1991.

Question: When will the RFP be released to the contractor for this procurement?

Answer: The RFP release and issue dates are as follows:

Draft RFP released	April 1987
Issue RFP	June 1987

Question: When do you anticipate that the price will be completely negotiated?

Answer: We anticipate the price to be completely negotiated in January 1988.

Question: It is the understanding of the committee that it is only the guidance and control section that will be covered under this proposed multi-year. Why are the other major components; the airframe, propulsion, warhead, and containers not being considered for multi-year? If all major components were within the multi-year, how much additional money could the government save over a single year buy?

Answer: The guidance and control section of the missile accounts for 81% of the missile cost and was the prime candidate for multi-year procurement. The other components are separate contracts to separate vendors. The procuring activity (U.S. Army Missile Command), however, is currently investigating the feasibility of a multi-year procurement of the propulsion unit (rocket motor) of the missile. The rocket motor accounts for 7% of the overall missile cost.

If any other components meet the criteria for a multi-year procurement (i.e., 12% savings), they would also be considered for multi-year procurement. It should be noted that these components are already under full and open competition annually, and it is doubtful that a multi-year would produce the required savings in these areas.

Question: Has the Department considered open competition for this buy? What were its conclusions?

Answer: The procuring activity (U.S. Army Missile Command) has just completed a comprehensive open competition study. U.S. Army Missile Command determined that open competition for the HAWK missile system is not feasible due to the technical and schedule risks associated with open competition.

TRIDENT II (D-5) MISSILE

Mr. Secretary, the first TRIDENT II Performance Evaluation Missile (PEM) flight test was scheduled to take place in March of this year.

QUESTION: Did this test take place on schedule? What were the results?

ANSWER: Performance Evaluation Missile (PEM) flight tests involve missile launches from the TRIDENT submarine, the USS TENNESSEE. They are not scheduled to start until early 1989. Development flight tests began on schedule on January 15, 1987. Two missiles have been launched to date. Both were highly successful and achieved all development test objectives.

QUESTION: What is the current estimate of the IOC of the TRIDENT II Missile?

ANSWER: The TRIDENT II (D-5) Missile Initial Operational Capability (IOC) is December 1989.

QUESTION: There is a two year delay in the deployment of the first fully operational GPS constellation. How does this effect the IOC of the TRIDENT II Missile? Does this have an effect on the flight test program?

ANSWER: The currently planned schedule for launching the Block II NAVSTAR Global Positioning System (GPS) satellites is adequate to support the TRIDENT II (D-5) missile development flight test program providing the existing satllites remain in service.

QUESTION: What is the current status of the flight test program? How many flight tests have occurred and what have been the results? How many flight test missiles are included in this program?

ANSWER: Two TRIDENT II (D-5) Missile development flight tests have been conducted from Cape Canaveral, Florida. Both have been highly successful. The development flight test program consists of twenty such pad launches and ten Performance Evaluation Missile (PEM) launches to be conducted from the first D-5 capable submarine, TENNESSEE (SSBN 734), in 1989.

QUESTION: The FY-88 MK-6 advance procurement line shows a cost increase of $54 million for the same number of guidance systems as you will buy in the FY-87 program. Please explain why this increase is justified.

ANSWER: The advance procurement funding increase of $54.0 million between the FY-87 budgeted value of $222.0 million and the FY-88 request of $276.0 million is offset by a decrease of $52.4 million in full funding requirements. Consequently at the end cost level, FY-88/89 costs are virtually the same. Unit costs for FY-89 systems is $28.000 less than that of the FY-88 systems as a result of increased learning.

Despite the fact that the total costs associated with the FY-88/89 procurements are comparable, there is a potential for adverse program impact associated with the manner in which the FY-88 buy of 108 systems is financed. (The FY-89 program is currently time phased.) Congressional action on the Presidents

FY-87 budget which deleted 33.6M from the original $255.6M MK 6 procurement request resulted in an inability to procure sufficient long lead materials in FY-87 to support manufacture of the full 108 FY-88 systems. The DoD announced that it would delete at least four systems from the FY-88 buy resulting in a strong likelihood that a full complement of MK 6 systems will not be available at the outload of the third TRIDENT II Submarine (SSBN 736). That risk remains today. To avoid promulgating that risk into load-outs of SSBN's beyond the third, funds deleted in the FY 87 advanced procurement were restored in the FY 88 full funding line.

QUESTION: The MK-6 guidance system advance procurement funds inreased $54 million in FY-88 for the same number (108) requested in FY-87. The only explanation provided in the justification books is that the "Unit cost increase reflects inflation partially offset by economies of scale resulting in quantity chajnge." Inflation alone cannot justify a 25% price increase from FY-87 to FY-88. Please explain in detail the reason for this increase.

ANSWER: As indicated in the preceding answer, the increase of $54.0 million between the FY-87 and FY-88 MK-6 Guidance System advance procurement requests is a function of the different manner of financing the MK-6 systems full-funded in FY-88 and FY-89, not an increase in total funding requirements. In fact the unit cost of the MK-6 Guidance System grew by only $25,000 betweejn FY-87 and FY-88 and decreased by $28,000 between FY-88 and FY-89. The following table displays how these FY-87-89 unit cost changes were brought about:

Explanation for MK-6 Guidance System
Unit Cost Changes

		($000)
FY-87	Unit Cost	$ 7,708
	+ Inflation (3.31%)	+ 255
	(-) Economies of Scale (2.98%) (108 units being procured in FY-88 versus 72 units being procured in FY-87)	(-) 230
	Net Change	+ 25
FY-88	Unit Cost	$ 7,733
	+ Inflation (3.0%)	+ 232
	(-) Learning (3.36%)	(-) 260
	Net Change	(-) 28
FY-89	Unit Cost	$ 7,705

5" SAL GP

Mr. Secretary, recent press reports state that Secretary Taft has decided to keep alive the Navy's DEADEYE munition program, a 5 inch laser guided projectile deployed on a variety of Navy ships.

QUESTION: Why was this program cancelled in the first place?

ANSWER: The DEADEYE Program was cancelled in September of 1986 by SECNAV due to affordability.

QUESTION: What is the current funding profile for this program?

ANSWER: Currently the funding profile is being reviewed at the highest levels of OSD, ASN(RE&S) and NAVCOMPT. Funding for FY-88 and out is the funding required to execute the program.

FY-86	FY-87	FY-88	FY-89	FY-90	FY-91	FY-92
$99.1M	$25M	$143M	$139M	$179M	$162M	$154M

QUESTION: Congress appropriated $127 million in FY 1987 for the 5-inch guided projectile program. Please identify if and how this money has been obligated.

ANSWER: After program termination, the $127 million was used by NAVCOMPT for funding of higher priority programs during that year. Offsets to reprogram that funding are still under review by NAVCOMPT and OSD.

QUESTION: Are there dollars requested in the budget for this program? Please identify.

ANSWER: No. In that the President's budget was submitted to Congress before the new program profile was developed, no funds for FY-88 were requested.

SONOBUOY PROCUREMENT

Mr. Secretary, the Navy proposes a 40 percent reduction in funding for sonobuoy procurement in FY-88. The FY-87 supplemental request that is before this committee includes a request for the three types of sonobuoys most severely reduced in your FY-88 request.

QUESTION: Would you please identify your total funding and program requirements for sonobuoys for FY-88 and the outyears?

ANSWER: The Navy had identified the total funding and program requirements for sonobuoys for FY 1988 and the outyears during the POM process as follows.

	FY-88 Qty(K)/$M	FY-89 Qty(K)/$M	FY-90 Qty(K)/$M	FY-91 Qty(K)/$M
SSQ-36	30.4/4.8	40.6/6.2	41.1/6.4	40.8/6.6
SSQ-53	211.0/96.5	196.0/100.1	221.5/115.8	235.5/126.0
SSQ-57	18.0/3.3	17.5/3.5	17.5/3.6	17.4/3.7
SSQ-62	14.2/25.8	19.9/36.8	19.8/38	19.7/39.3
SSQ-75			1.0/27.8	2.0/28.8
SSQ-77	104.4/102.9	81.6/98.4	72.2/111.5	72.2/115.3
SSQ-86	.7/1.7	.6/1.5	.6/1.6	.6/1.6
LCS	500.0/28.0	500.0/28.7	500.0/29.7	500.0/31.7
TOTAL Qty/$	878.7/263.0	865.2/275.2	873.6/334.4	888.2/353.0

Funds to procure these quantities were requested during the FY-88/89 process. However, this level of funding could not be supported in the President's budget due to higher priority program requirements. The current FY-88/89 quantity projection is based upon the funding levels approved by DOD for inclusion into the President's budget.

SONOBUOY PROCUREMENT

QUESTION: If Congress does not approve the supplemental request for sonobuoys, will your funding requirements for FY-88 and FY-89 need to be adjusted?

ANSWER: Yes. A rejection of the supplemental request will result in deficiencies in funding and quantities that will cause inventory projections to fall below programming objectives. To meet program objectives, the following additional quantities/funding would have to be authorized in the years indicated:

	FY-88 Qty(K)/$M	FY-89 Qty(K)/$M
SSQ-53		72.2/27.7
SSQ-57	24.9/5.1	11.4/2.4
SSQ-77		10.4/6.9
Total	24.9/5.1	94.0/37.0

Question. Over the past few years, the Navy has substantially increased the industrial base for sonobuoy production, realizing significant cost savings through competition. What impact will a 40 percent reduction have on this industrial base, and what will it do to the progress you have made in terms of cost savings?

ANSWER: The 40 percent reduction could have a severe impact on the sonobuoy industrial base. If awards are made to all qualified producers based on current quantities, the price will rise dramatically. However, if we limit the number of awards to one or two producers to achieve a more cost effective price, the possibility exists that we could lose one or two "hot" base producers. the uneconomic quantities to be procured as a result of the 40 percent reduction will invariably increase the unit costs and possibly offset the cost savings we have earned over the past few years.

QUESTION: What is the level of funding necessary to maintain the existing contractor community?

ANSWER: The contractors have facilitized to build sonobuoys at a higher than normal rate due to the increased quantities procured in the past years to make up war reserve shortages. Most contractors have operated in excess of a one, eight hour shift, five days a week (1-8-5) level to make optimum use of their facilities and to meet the increased quantity requirements. For each of the four sonobuoys manufacturers to operate a 1-8-5 level with existing facilities would require a funding level of $176.6M per year plus inflation.

NUCLEAR REACTOR POWER UNITS

QUESTION: The Navy has substantially reduced the procurement of nuclear reactor power units in FY 88, from an annual rate of six to now only two per year. What is the rationale for this program reduction?

ANSWER: The Navy budgets reactor power units on a schedule to smooth out the peaks and valleys in work for its two core suppliers. The reduction to the reactor power unit budget in FY 88 reflects the addition of an equivalent amount of core work in FY 88 for nuclear powered aircraft carriers.

QUESTION: The Navy has substantially reduced the procurement of nuclear reactor power units in FY 88, from an annual rate of six to now only two per year. If the long lead funding for the additional two carriers is reduced, what is the impact on the OPN account? Will this reduction have an impact on the nuclear reactor industrial base?

ANSWER: If the FY 88 request for carriers is reduced, additional funds would be required in the OPN account to account for the loss of core work. Reduction in funding for the carriers without a corresponding increase in the reactor power unit budget would jeopardize the Navy's ability to maintain two suppliers for the reactor cores used in over 40 percent of the Navy's combatant fleet.

OPN SPARES FUNDING

QUESTION: Mr. Secretary, the FY 1988 request for the OPN accounts is reduced by almost 20 percent from the FY 1987 enacted levels. Given this large reduction, how does the Navy justify increases in initial spares by 10 percent, while replenishment spares funding actually decreases for FY 1988?

ANSWER: Compared to FY 1987 the FY 1988 OPN Initial Spares request increased by nine percent while OPN hardware request declined. Initial spare requirements are budgeted to support the operational capability of a particular hardware installation. Initial spares are not necessarily budgeted in the same fiscal year as the supported hardware. This is caused by hardware production leadtime, in some cases, being different than that of initial spares production leadtime.

The two percent decline in the FY 1988 OPN Replenishment request is attributed to a one-time requirements increase in FY-87 followed by a decrease in FY-88 caused by a significant movement of support to Navy Stock Fund financing.

VERTICAL LAUNCH SYSTEM UPGRADE PROGRAM

QUESTION: The Navy has substanially rescheduled the Vertical Launch System Upgrade Program from the level projected in the FY 1987 request. What events have occured since your last budget submit to cause this much of a change?

ANSWER: The Vertical Launch System Upgrade Program has been rescheduled for the following reasons. A Total Obligation Authority (TOA) reduction in FY 1988/1989 precluded the Navy from procuring the total number of Vertical Launch Systems requested in the FY 1987 budget submission. Additionally, an internal Navy decision to extend the interval between overhauls for the DD 963 class ships has also reduced the number of Vertical Launch Systems required per year.

QUESTION: Are the VLS Upgrades still tied to ship overhaul schedules?

ANSWER: Yes.

QUESTION: Please identify any changes in these schedules since your FY 1987 budget submit.

ANSWER: The DD 963 class overhaul schedule has been extended from a 60 month cycle to an 80 month cycle thus spreading the requirement for Vertical Launch Systems over a longer period of time.

NAVY RELOCATABLE OVER THE HORIZON RADAR (ROTHR)

QUESTION: Secretary Lehman, your FY 88 Budget submit shows that the Navy plans to initiate procurement of a Relocatable Over-the-Horizon Radar. Given our investment in the Air Force OTH-B and the PAVE PAWS systems, how is it that the Navy requirements for their program are sufficiently different that it requires an entirely separate program?

ANSWER: In specifying the ROTHR system performance, Navy operational requirements and technical factors had a strong role in influencing the system design which makes it different from the USAF FPS-118. They Navy requirement for the system to have a ship detection capability as well as an aircraft detection capability and the need to minimize the power generation requirements for forward system deployment drove the Navy in favor of a large receive antenna aperture, with resulting high receive gain, and a lower transmit power requirement (200KW vs 1200 KW for OTH-B). The large receive aperture permits narrow receive beams to reduce sea clutter for detection of ships. The combination of receive gain and transmit power selected for the ROTHR system will provide adequate ship and aircraft detection capability at all potential ROTHR sites. The FPS-118 specifications were driven by the Air Force requirement to provide timely warning of a bomber or cruise missile attack on North America to enable survival actions by the retaliatory forces and allow the National Command Authority (NCA) to have decision time consistent with missile warning requirements. Since the aurora borealis prevents OTH-B radar operation in far northern latitudes during evening hours, the FPS-118 surveillance coverage must form a contiguous barrier with microwave radars of the North Warning System (NWS) which will replace Distant Early Warning (DEW) Line, and SEEK IGLOO (Alaskan radars). In order to improve cruise missile capability, the FPS-118 needs greater power than ROTHR. Differences in the system processing and control software will exist because of the Navy's need to provide rapidly flexible operation over the entire radar access area to detect and maintain track of both ships and aircraft in support of battle group operations. Radar scan patterns for the tactical and strategic requirements are different. In addition, the primary interfaces with the command and control systems are different and interfaces with the command and control systems are different and call for differences in the operation and control subsystems and communications equipments.

In contrast to both the Navy ROTHR and Air Force OTH-B, the primary mission of PAVE PAWS is to detect, track, and provide early warning information of Submarine Launched Ballistic Missiles (SLBMS) launched from the Atlantic and Pacific Oceans targeted at the U.S. This radar network is not suited to detect ships, aircraft or cruise missiles.

CARRIER PRODUCTION

QUESTION: Mr. Secretary, the 1988 and 1989 budget requests funds for starting two more aircraft carriers. You state the cost of carrier production will be minimized by accelerating this procurement to follow-on to current carrier production. The budget states the two carriers will deliver in 1995 and 1997, but your statement says 1997 and 1999. Which is correct?

ANSWER: Since CVN-74 and CVN-75 will deliver in late 1995 and 1997, they will not be available for deployment until 1997 and 1999. After carriers are delivered and are commissioned, usually about one month after delivery, they undergo a post delivery fitting out period. Included in this is time at sea for flight deck certifications, refresher training for the crew and weapons qualifications. Thereafter, the ship returns to the shipyard for a Post Shakedown Availability (PSA) for a nominal three or four month period. After PSA the carrier is available to the type commander for a workup period with its air wing to prepare the ship and air wing team for combat operations. The entire process from delivery to deployment usually takes eighteen months.

QUESTION: What are the increased costs of not delivering the ships for an additional two years?

ANSWER: Shifting the CVN-74/75 multiship program two years to the right would increase the then year costs of the program by approximately $1 billion. This is a rough estimate, but for program comparison purposes comes fairly close to what the increased direct costs would be for a two-year delay. What cannot be calculated is the indirect additional cost to the Nation and the Navy of not having these two carriers available to replace ageing and increasingly expensive-to-maintain older carriers until two years later (at least) in the century.

QUESTION: If the budget is correct and the CVN-75 will deliver in 1997, which FORRESTAL Class ship will it replace and at what age?

ANSWER: CVN-75 will deliver in late 1997 and after a Post Shakedown Availability (PSA) and a workup period with its air wing, will be available for fleet operations in 1999. USS FORRESTAL (CV-59) will be 44 years old (SLEP+14) and USS SARATOGA (CV-60) will be 43 years old (SLEP+16) in 1999. Which carrier we replace will be based on the material condition of the ships in the mid-1990s and a final determination will be made then.

QUESTION: Explain any retirement prior to either fifteen years following the service life extension or the expected retirement age of 45 years.

ANSWER: Service Life Extension Program (SLEP) was formulated to extend the 30-year life cycle of the CVs to a nominal 45 years. Since six conventional carriers were commissioned in seven years (1955-1961), we will have to adjust the retirements slightly in order to maintain the 15 CV/CVN force level. As an example, USS FORRESTAL (CV-59) will be 44 years old (SLEP+14) and USS SARATOGA (CV-60) will be 43 years old (SLEP+16) in 1999. Most importantly, however, will be the material condition of the ships as they approach the end of their service lives.

CARRIER STRIKING POWER

QUESTION: According to Navy statements the new carriers (CVNs) have the strike power of ten World War II carriers. Considering the complement of aircraft and overall capability of the MIDWAY and FORRESTAL Class ships, what is a similar comparison for the MIDWAY and the CVN-74 and the FORRESTAL and the CVN-75?

ANSWER: USS MIDWAY (CV-41) was commissioned in 1945 as a CVB (battle carrier). It was originally designed for propeller driven aircraft and was capable of sustaining numerous hits by kamikaze aircraft. Due to the landing speeds and weight of modern jet aircraft, she was decommissioned in 1966 and received a larger flight deck and support spaces for an all jet air wing. Although modernized, she is a small (62,600 ton displacement), labor intensive ship with 12 boilers and only two catapults, and operates an air wing of 60 aircraft. Being conventional, she must refuel on the average of every three days and has limited magazine capacity.

By comparison, the FORRESTAL Class ships (four were commissioned between 1955 and 1959) were built from the keel up to support jet aircraft. Steam powered from eight boilers, they can operate about 75 aircraft from four steam catapults.

Four NIMITZ Class carriers have been commissioned and another two are under construction. These new CVNs have more extensive aviation features than smaller carriers which directly contribute to enhanced combat operations. These 94,000 ton displacement carriers with four catapults can generate 50 percent more sorties than a carrier with only two catapults over the same time period. They can generate a greater number of strike sorties and deliver greater ordnance loads on target than can the smaller MIDWAY carriers. They carry 100 percent more aviation fuel and 50 percent more ordnance than their conventional counterparts and are capable of two weeks of sustained combat operations without refueling.

COASTAL MINEHUNTER PROGRAM

QUESTION: I understand that you have received a letter from a House colleague requesting that you hold up the contract of the new Coastal Minehunter Program. What are your plans to respond to this request? What is the impact of any delay on the program? Has the cost of the MHC doubled since last year?

ANSWER: The Navy has received letters requesting a delay in awarding the lead ship of the Coastal Minehunter (MHC 51) Class from Mr. Aspin and Mr. Chappell. Both letters were answered by the Secretary of the Navy on 27 April 1987.

We had initially planned to award this contract in February 1987, but contractual readiness and Congressional interest delayed the award. Based on a February 1987 award date, we estimated delivery of the lead ship in November 1990. We made the lead ship award in late May 1987, and now estimate lead ship delivery will occur in March 1991.

The cost of the lead MHC has not changed from what was appropriated by Congress in the House Conference Report to accompany H. J. Res. 738, dated October 1986.

Question. Mr. Secretary, there are reports of slips in production schedules of submarines, cruisers and destroyers. Additionally, there have been reports of renegotiations on aircraft fixed price development contracts because of delays. Is there enough money in the existing budgets to cover any expected overrun or could we be facing the claims problems which plagued the navy ten years ago?

What is causing the reported problems?

Have we gone too far with fixed price contracts and competition or are these problems aberrations?

Answer. In private sector shipbuilding programs from FY 83 through FY 86, we have saved over $6.8 billion to date. Also we have saved over $2 billion in aircraft programs. We expect additional future net savings as we continue the management initiatives that have proved so successful.

We protect ourselves in shipbuilding and aircraft construction by requiring contractors to perform to the contract. Knowing that they will have to perform to contract acts as an incentive not to propose a contract that will cause them financial difficulties. Fixed price contracts require the contractor to manage his program to meet cost commitments he has made in the contract. Providing incentive share lines allows the contractor to gain a financial reward if he can manage the program below cost commitments and penalizes him if he fails. Maintaining reserves and applying our share of savings from successful contractors to cost growth by unsuccessful contractors protects us against funding problems.

It is our obligation to represent the interests of the taxpayers at large by requiring contractors to manage programs to meet cost commitments they made in their contracts, reward them if they succeed, and penalize them if they fail to perform successfully. Overall, competition and fixed price contracts have been instrumental in saving the taxpayers billions of dollars in shipbuilding and aircraft construction. Over the long term, those firms that can be successful in a competitive, fixed price environment will be stronger through management commitment to cost control.

AIRCRAFT PROCUREMENT

Question. Both the F-14 and A-6 show substantial price increases from the planned program a year ago. Are these a result of the development problems or are there other reasons?

ANSWER: Both the F-14 and the A-6 show substantial price increases from the planned program a year ago as a result of major model upgrades--F-14A to F-14D and A-6E to A-6F.

QUESTION: As you leave the Navy after such distinguished service can you assure the Committee that your efforts will not be marred by the types of overruns we saw in the 1970's?

ANSWER: I have the utmost confidence in the Reagan Administration management team and in the acquisition policies we have put in place. I anticipate no problems as long as our policies are implemented.

Light Armored Vehicle-Air Defense (LAV-AD)

The Marine Corps recently withdrew its RFP for the air defense version of the Light Armored Vehicle because only one contractor responded. Your staff now states that the Marine Corps is starting at square one and evaluating the requirements in the last RFP.

Question: How long of a delay do you expect before you reissue the RFP?

Answer: The RFP will be reissued on 22 May 1987.

Question: How long of a delay do you expect for the first production contract?

Answer: The production contract will be delayed one year. This year includes the six months used to revise the RFP and the six additional months for prototype build to enhance competition.

Question: What does this do to the IOC for the system?

Answer: The new IOC will be 1st Qtr FY94, which is one year later than previously planned.

Question: How much money is currently in the FY88 and FY89 budgets for this program and in what accounts?

Answer: The Marine Corps RDT&E Presidential Budget contains the following funds (PE 64656M Marine Corps Assault Vehicles (Engineering)): FY88 $16.035M FY89 $15.267M

Question: What kind of target acquisition system was asked for in the last RFP?

Answer: The target acquisition system asked for in the last RFP and the new RFP is a forward looking infrared (FLIR)/optical sight.

Question: Has the Marine Corps looked at the Army's line of sight forward program and the recent RFP they released? How is the system the Marine Corps is trying to develop different from the system the Army is trying to develop?

Answer: The Marine Corps is aware of the Army's desire for a hybrid (gun/missile mix) system for their line of sight forward program. The Marine Corps system is required to fit on the Light Armored Vehicle (LAV) chassis and have the same mobility characteristics as the rest of the LAV family of vehicles. This means it must be able to swim and its full combat weight cannot exceed 29,000 pounds so that it can be lifted by a CH-53E helicopter.

Question: Is it possible to develop on air defense weapon system, with different chassis to meet the needs of both the Army and the Marine Corps?

Answer: It is conceivable that if the Army procured a variation of the Marine Corps air defense turret, commonality between the two Services could be substantially established.

AEGIS SHIPS

QUESTION: Admiral Trost, this subcommittee heard testimony earlier this year from Admirals Lyons and Kelso on the force multiplier effect of the AEGIS cruiser. Can you tell us from your perspective what the AEGIS cruiser means to the Fleet?

ANSWER: Navy AEGIS cruisers and destroyers meet the existing threat as well as future threats within the scope of breaking technology. Seldom has a system made such an immediate and profound impact on a warfighting mission area as AEGIS has made on the Navy's antiair warfare mission. A recent, extremely critical problem area

-- in view of the development of the Soviet air threat -- is now under control. Effectively, AEGIS takes the U.S. Navy at one jump from 1960 technology to the 1990s and beyond. It provides a margin of confidence in the soundness of our offensive battle force strategy. And it enhances our ability to use other surface assets, like the battleship, in various applications beyond the umbrella of carrier or land based airpower. The AEGIS system's powerful phased-array radar can detect threat aircraft well beyond their missile envelope as well as incoming missiles at long ranges, at all altitudes, and its automated fire-control equipment can track and engage many targets simultaneously. A single AEGIS ship gives the battle force commander the capability for total control of 360 degree airspace with a radius in excess of 250 miles or greater than the distance from Washington, D.C. to Pittsburgh, Pennsylvania. AEGIS is a system carefully tested and proven before production, whose costs were then cut nearly in half by competitive procurement. It is an outstanding success story of team play in the national defense.

QUESTION: There is some thought in Congress to authorize five cruisers in 1988 and no destroyers. What would you think of such a proposal?

ANSWER: The Navy needs five AEGIS ships. We support either alternative; the budget proposed by the President, two CGs and three DDGs or the cruiser buy-out strategy. There is an immediate need for AEGIS ships to replace aging DDG 2 and 37 class destroyers. Both AEGIS ships have a capability which has previously not existed in the fleet. The addition of AEGIS ships, either cruisers or destroyers, would strengthen the Navy.

QUESTION: What would be the impact of delaying destroyers until all the remaining cruisers were bought?

ANSWER: For FY's-88/89 the Navy has programmed and budgeted for ten AEGIS ships (four CG-47's and six DDG 51's) with the final cruiser programmed in FY-90. Changing the mixture of ships between FY's-88/89 alone will have little to no impact on cost. If we buy five destroyers in FY-89 there is no change in dollar value, however, if we reduce ships from ten to some lesser number in FY's-88/89 it will force additional ships to be programmed into FY-94 or later which will result in increased costs.

MK-19 40mm Grenade Launcher

The Navy is the Program Manager for the MK19-3 40mm Automatic Grenade Launcher. It was developed and approved for the Navy and Marine Corps in 1981 and type classified by the Army in December of 1985. Initial procurement was contracted for in 1983 by the Navy's program office.

Question: Reference the 1983 contract, how many MK19-3s were contracted for, for which Service, and for what price?

Answer: The following MK19-3s were contracted for during the 1983 contract:

Service:	USMC	ARMY	AIR FORCE	NAVY	TOTAL
Quantity:	1,254	951	161	14	2,380

Unit Cost: $3,736.00

Question: How many of the MK19-3s from the 1983 contract have been delivered and accepted by each Service?

Answer: The following quantities have been delivered and accepted from the 1983 contract:

Service:	NAVY	USMC	TOTAL
Quantity Accepted:	4	19	23

Question: How many 1983 contracted MK19-3s are currently waiting for acceptance by the program office?

Answer: None are currently submitted for acceptance. The manufacturer is awaiting the government's evaluation of a design deviation/waiver request.

Question: Are waivers being requested for the MK19-3s from the 1983 contract?

Answer: Yes. All of the previously accepted MK19-3s were granted dimensional waivers during acceptance. It is anticipated that until the production line has run for a while, that dimensional deviation will continue to be required. This is not a situation unique to the MK19-3, but characteristic of most new production. All waivers granted were for minor dimensional deviations that did not alter form, fit, or function.

Question: How much money is in the fiscal year 1988 budget request, by Service, for the MK19-3?

Answer: The fiscal year 1988 budget request for the MK19-3 is as follows:

Service:	NAVY	USMC	ARMY	USAF	TOTAL
Budget Request:	$1.2M	$3.6M	$13.8M	0	$18.6M

Question: Is the Navy negotiating with the current producer for a follow-on contract? What is the procurement strategy for this contract?

Answer: No. The fiscal year 1986 MK19-3 procurement will be competed with options for fiscal year 1987 and fiscal year 1988.

Question: Why is the Army assuming program management responsibilities for this program in fiscal year 1988?

Answer: The predecessor to the MK19-3 (the MK19-1) was developed by and exclusively used by the Navy in the 1960's. The MK19-3 began as a product improvement program. Initially the PIP effort included only the Navy and Marine Corps, and was managed by the Navy. The Army and the Air Force entered into the program while it was in progress. By fiscal year 1988, the Navy's requirements will shrink to about 25 guns a year while the Army's requirements will ramp up to 1,000 guns a year or more. As the focal point of almost all ground weapons programs and as the major buyer of the Mk19-3 in the out years, the Army wants to take over management of the program. The plan is for the Navy to phase control of the program over to the Army in fiscal year 1988.

CARRIER PRODUCTION SCHEDULE

QUESTION: According to Navy testimony of March 12, 1987 to the Senate Armed Services Committee, the Navy request for advance procurement for the CVN-75 is four years prior to laying the keel. Since advance procurement is requested for FY 1989 (October 1988), is it correct that the keel will be laid during the first quarter of fiscal year 1992? What is the current plan for the keel laying, launching date and delivery date for the CVN-75?

ANSWER: The answer to the first question is no. The current plan for CVN-75 is as follows:

Keel - 12/92
Launch - 6/95
Delivery - 12/97

This plan fits heel-to-toe with the plan for delivery of CVN-74 and is patterned closely after the construction schedules achieved on CVN-72 and CVN-73. Of course all of these dates would be subject to negotiation with Newport News Shipbuilding. During these negotiations the Navy would attempt to negotiate earlier dates but the plan reflects what can be realistically expected.

QUESTION: The Congressional Data Sheets show a delivery date of June 1997 for the CVN-75. Is this correct? Considering the budget is estimated on a delivery date of 1997, what is the impact on the cost of delivery of 1999?

ANSWER: The Congressional data sheets reflects what the Navy would like to achieve as a target delivery date for CVN-75, which is June 1997. This represents a building schedule that is approximately five to six months shorter than that projected on CVN-74 or on previous CVNs of the NIMITZ Class. The budget was based on a delivery date later in 1997 (December) but the Navy would attempt, in negotiations to achieve an earlier date. These negotiations are extremely tough so there is no guarantee that the earlier date can be achieved.

There is no way to estimate the cost of shifting the delivery of only CVN-75 two years to the right of the current plan without also assuming that CVN-74 was also shifted to the right. The cost of shifting both carriers to the right two years, as indicated before, would be approximately one billion dollars.

QUESTION: According to the Secretary's testimony (p.71), CVN-73 joins the fleet in 1991, the same year as its delivery. Why then is CVN-75 joining the fleet in 1999, two years following delivery?

ANSWER: GEORGE WASHINGTON (CVN-73) will be delivered to the Navy in late 1991. After a fitting out period she will go to sea for flight deck certifications, refresher training for the crew and weapons qualifications. Thereafter, the ship returns to the shipyard for a Post Shakedown Availability (PSA). Upon completion of this availability the ship begins its work-up with its own air wing before deployment.

CVN-75 will follow a similar schedule with delivery in late 1997 and will not be available for deployment until 1999.

QUESTION: According to the Secretary's statement, a FORRESTAL Class carrier will be over 45 years old when retired in 1999. Which FORRESTAL Class carriers will be older than 45 and which one will be retired?

ANSWER: USS FORRESTAL (CV-59) will be 44 years old (SLEP+14) and USS SARATOGA (CV-60) will be 43 years old (SLEP+16) in 1999. Which carrier we replace will be based on the material condition of the ship in the mid-1990s and a final determination will be made then. Since six conventional carriers were commissioned in seven years (1955-1961), we will have to adjust the retirements slightly in order to maintain the 15 CV/CVN force level.

AEGIS SHIPS

QUESTION: The Secretary testified to the Senate Armed Services Committee that 2 ships were deleted from the 1990 budget to provide partial funding of the first carrier, one of these is a DDG. Why, when the DDG program schedule has already been delayed, does it make sense to slip a DDG into 1991?

ANSWER: The objective level for AEGIS Cruisers and destroyers is based on the Navy 15 carrier battle group force level requirement. Replacement of the two aging carriers is of the utmost importance. It was impossible to include the request for both the carriers and destroyers without some adjustments to procurement profiles. Slipping a destroyer has a lesser impact than delaying the introduction of replacement carriers.

DDG PROGRAM

QUESTION: The Secretary testified to the Senate Armed Services Committee that two ships were deleted from the 1990 budget to provide partial funding of the first carrier, one of these is a DDG. What would be the impact of this decision if the Congress accelerates the production of AEGIS cruisers as suggested by the House Armed Services Seapower Subcommittee?

ANSWER: Our FY 88/89 five year SCN plan has one CG 47 and three DDG 51 class ships in FY 90. Accelerating production of the AEGIS cruiser program would allow us to seek funding for an all destroyer program in FY 90 with at least four destroyers instead of three as in the current plan. This higher production rate, all-destroyer alternative for FY 89 and FY 90 would avoid having two low production rate programs in the same fiscal year.

QUESTION (1): The Secretary testified to the Senate Armed Services Committee that two ships were deleted from the 1990 budget to provide partial funding of the first carrier, one of these is a DDG. What savings accrue in the CG-47 program by accelerating procurement? Answer for these mixes: 3-2, 3-1-1, 4-1, and 5-0?

ANSWER: Our original acquisition strategy called for two CGs in FY 88 with options for two in FY 89 and one in FY 90. This profile is currently projected to cost $4,385 (TY $million). The table below provides the current estimates for the requested profiles:

	QUANTITY FY 88/89/90	(TY $million) Projected End Cost	SAVINGS FROM $4385 base
A	3 2 0	4260	$125 million
B	3 1 1	4365	20 million
C	4 1 0	4241	144 million
D	5 0 0	4144	244 million

QUESTION (2): What is the resultant impact in DDG cost?

ANSWER: Because the DDG 51 program is still in its early, low production rate years, it has yet to experience the savings generated by a steady state production program. The lead ship was awarded in FY 85 with no ships requested in FY 86. Only two destroyers were appropriated in FY 87. Delaying the FY 88 destroyers to FY 89/90 will create a gap year, and defer learning curve savings. However, the gap year will allow time for the second source to become more competitive with the lead yard. This increased cometitiveness combined with higher production rate, all-destroyer construction profiles will likely result in greater savings than the learning curve effects alone. Based on experience in the AEGIS cruiser program, we would expect competition effects to be much stronger than learning curve effects on reducing the final end cost of the ships.

QUESTION: Considering the current problems with destroyer production, does the Navy think it might make sense to slip further DDG production into 1989?

ANSWER: There are some design problems on the lead AEGIS destroyer and we expect productivity problems on the lead destroyer because of our experience with the destroyer lead yard on their construction of AEGIS cruisers. Deferring FY 88 destroyers to FY 89/90, while accelerating the cruiser program to complete with FY 88, has the advantage of allowing the second shipbuilder additional time to become more competitive with the lead builder. Also, this additional time will allow the lead builder to address his productivity problems.

Furthermore, the alternative strategy will create a high production rate all-cruiser profile in FY 88, and high production rate all-destroyer profiles in FY 89 and beyond avoiding the continued overlap of two low rate production programs.

QUESTION: If the DDG production is deferred until 1989, what are the anticipated cost increases? If this exceeds the cost only of inflation, why then is there no additional cost of deferring a 1990 DDG as testified earlier this year by the Secretary?

ANSWER: We see no reason for cost increase above inflation, and expect the deferral of production to allow the production process on the level ships at both yards to prepare for efficient future production.

CV-SLEP

QUESTION: Please explain the cost growth of the CV-SLEP program from the SARATOGA through the KITTY HAWK. Explain the lengthening time to accomplish each SLEP.

ANSWER: The cost growth in the CV SLEP program from SARATOGA through KITTY HAWK is as follows:

	STABILIZED MAN DAY RATE	GFE/OTHER ($ IN MILLIONS)	BUDGETED END COST ($ IN MILLIONS)
CV-60	$222.65	$ 56.1	$549.1
CV-59	257.55	74.5	698.5
CV-62	306.48	130.0	870.1 (est)
CV-63	335.00	163.8	947.5 (est)
% INCREASE CV-60 to CV-63	50.5	192.0	72.6

The increased stabilized man day rate is a weighted labor rate based on the expected percentage of work that will be completed during each fiscal period of the SLEP availability.

The increase in government furnished equipment (GFE) cost are based on the type of hardward provided for the ship's modernization through the Fleet Modernization Program (FMP). The GFE for each ship differs due to the alterations planned for each ship. New state of the art hardware is programmed for the KITTY HAWK SLEP which was not included in the SARATOGA SLEP. Examples are the improved Navy Tactical Data System ($25 million), new main engine components ($10.6 million) and the Target Acquisition System ($7.5 million).

In addition, $25.9 million in cost has been added to KITTY HAWK for the new Federal Employees Retirement System that was not included in previous ships.

Relative to availability duration, the first two SLEPs (SARATOGA and FORRESTAL) were 28 months in length. In order to take advantage of shipyard production efficiencies through the reduction of overtime and trade mix considerations the INDEPENDENCE SLEP was extended to 34 months. The duration of the KITTY HAWK SLEP will be 37 months to maximize savings through both reduced overtime and trade mix considerations.

A-6E/F PROGRAM

QUESTION: Please explain the $90.8 million increase for A-6 R&D.

UNCLASSIFIED

ANSWER: The increase is attributed to A-6F ECP-1. ECP-1 adds significant operational capabilities to the A-6F, including: (1) the Low Altitude Warning System (LAWS); (2) Upward Firing Chaff (ALE-39); (3) Provisions for IDAP; (4) Pilot's and FAC's TDC; and (5) Night Attack Navigation (NANS), which incorporates a digital color moving map display, a raster HUD, a navigational FLIR and Night Vision Goggle capabilities. In total, this ECP greatly improves A-6F mission capability and combat survivability. ECP-1 has been added to the basic A-6F FSD contract and, like the basic FSD contract, the government is assured of cost control through binding NTE's which include both development and production.

QUESTION: The cost of the A-6 program has increased by $367.3 million for several reasons, please explain in detail the reasons and associated costs.

ANSWER: As indicated in the FY-88/89 Congressional Data Sheets, A-6 costs (all A-6 series, for all future years, and for all appropriations/budget activities) have increased by $368.4 million, since submission of the FY-87 Budget (Note: (FY-88 total @ $10,659.4B less FY-87 total @ $10,291.0B = $368.4M). This cost increase is driven by the following requirements:

1.	APN-1 weapons system procurement costs	= $311.1M
	FY-86 rate adjustment	60.4M
	ASPJ integration/provisions	48.6M
	A-6F/ECP-1 CFE unique material	163.4M
	Other procurement cost	38.7M
2.	RDT&E,N costs associated with ECP-1	= 90.8M
3.	MILCON associated with ECP-1	= 5.2M
4.	Decreased initial spares (APN-6) costs	= (38.7M
5.	Total increase	= $368.4M

QUESTION: The A-6F program will be procured for many years following 1992. At 36 per year one could easily not see the last A-6F delivered until the year 2000. Considering follow-on aircraft deliveries, why is it necessary to continue buying A-6F aircraft up to 1998?

ANSWER: The A-6F will not be procured for "many years" after FY-92. In fact, the Navy's A-6F program includes only 150 new aircraft, with the final delivery of FY-93 APN-1 funded A-6F's in FY-95.

QUESTION: Last year the A-6 program was programmed for 12 aircraft at $697.3 million. This cost has increased by $84.2 million, or $7.0 million per aircraft. Please explain in detail the sources of the increasing costs, and submit justification for continuing this program.

ANSWER: The $84.2 million FY-88 procurement cost (APN-1) increase for 12 A-6F aircraft (including ECP-1) and for logistics for all A-6E's and A-6F's, is driven by the following major enhancements to weapons system capabilities and support:

Requirement	Cost ($M)
A-6F ECP-1 (non-recurring)	12.4
Composite wing/A-6 Fatigue Testing	29.4
Accelerated organic software support	12.1
Enhanced "I" level automatic avionics testing	26.6
Aggregate of all other changes	3.7
Total	84.2

Significantly, these costs benefit all A-6E's and A-6F's (eventually approximately 500 aircraft) and are not attributable to the 12 A-6F's procured in FY-88 only. Accordingly, it is incorrect to suggest that the cost equates to "$7 million per aircraft." Rather, improvements such as: (1) wing and airframe fatigue life; (2) improved, cost effective, software maintenance at an inexpensive, organic, integration laboratory; (3) intermediate level automatic avionics testing (which cause decreased APN-6 spares and personnel requirements and which improves readiness), will benefit fleet attack capabilities in general, and all 500-plus A-6's in particular.

F-14 PROGRAM

QUESTION: The F-14D R&D program costs increased by $280.7 million according to the Congressional Data Sheets. Please specify the effect of inflation and explain any other cost increase in detail. Is this estimate still accurate? If not, please provide additional details explaining any changes.

ANSWER: The F-14 R&D program costs presented in the FY-87 Congressional Data Sheets represented the R&D costs of the F-14 program only through the first deployment of the F-14D in FY-92. The F-14 R&D program costs presented in the FY-88 Congressional Data Sheets are the total projected F-14 R&D program costs through FY-98 and therefore show a large increase from the previous year's Congressional Data Sheets.

The $280.7 million increase includes $240 million, or $30 million per year (FY 91-98), for a needed outyear "F-14D squadron" project number and approved program capability enhancements to meet the F-14D IOC: AMRAAM and HARM/HARPOON integration, conversion to USAF JTIDS, and a software modification to the ALR-67 radar warning receiver.

Grumman has recently projected cost growth on the F-14D FSD program. Restructuring and redefining various aspects of FSD (without impacting warfighting capabilities), clarifying specification interpretations, and analysis to determine realistic cost growth (including cause and responsibility) has resulted in a projected cost growth reduction of more than 60%. The current understanding reached with Grumman limits maximum government liability to $100 million over the current contract price and contemplates converting the current firm-fixed-price contract to a fixed price incentive contract where costs in excess of the current contract price are shared 50/50. It is estimated that additional funding of $80.0 million ($30.0M in FY-89 and $50.0M in FY-90) will be necessary to meet government obligations as described by this understanding.

QUESTION: The Navy has recently decided to buy 522 ATF fighters. Why then is it necessary to buy 417 F-14D aircraft after 1992?

ANSWER: Currently the ATF IOC is planned for circa 2000. To sustain the F-14 fighter force to the year 2000 requires 417 F-14D's to be procured for the FY 93-98 period. If the ATF IOC is changed then numbers of F-14D's can be modified accordingly.

QUESTION: In what year will the Navy end F-14 procurement, when will it begin ATF procurement?

ANSWER: The final F-14D procurement date depends on ATF IOC which is currently expected to be in FY-2000. To sustain the F-14 fighter force to the year 2000 requires F-14D procurement through FY-98. If the ATF IOC is changed, the planned procurement of F-14D's will be appropriately adjusted.

QUESTION: According to the budget justification material, configuration changes and nonrecurring costs for the F-14D cause the unit price to increase by $15.2 million. Does the F-14D provide a 40% improvement in capability to match the cost increase?

ANSWER: The F-14A does not meet the projected threat of the 1990's - the F-14D does. The increased capability fully justifies the increased costs associated with the upgrade.

Marine Corps Security Guards

Question: Please provide 1) the number and rank of Marine Corps personnel assigned to U.S. embassies and 2) special training these personnel receive.

Answer: (1) The Marine Corps programs 28 officers and 1,443 enlisted Marines for the Marine Security Guard Battalion. The number actually assigned varies as Department of State security requirements change. On 1 April 1987 the following were assigned:

	Officer	Enlisted
O-6	1	-
O-5	4	-
O-4	3	-
O-3	17	-
O-2	2	-
E-9	-	3
E-8	-	1
E-7	-	30
E-6	-	153
E-5	-	39
E-4	-	246
E-3	-	916
E-2	-	5
	27	1,393

(2) Detachment Commanders (E-6 and above) attend an eight-week course of instruction at the MSG School in Quantico, Virginia. Watch standers (E-5 and below) attend a six-week course of instruction at the MSG School.

Question: Please describe the funding relationship between the State Department and Marine Corps for pay and support of those security personnel.

Answer: All pay and allowances for Marine Corps Security Guards are chargeable to the Marine Corps, except BAQ, BAS, COLA, and station housing allowance paid in lieu of quarters. The Marine Corps also provides Marines with an initial issue of dress blue uniforms. The Department of State pays Marine Security Guards BAS, COLA, a civilian clothing allowance, travel expenses in conjunction with duty assignments/transfers, and provides fully furnished government owned or leased quarters.

Question: Please provide the number of Marine Corps personnel assigned to U.S. embassies and the number of personnel per embassy for FY 1955, 1960, 1965, 1970, 1975, and each year 1980-1988.

Answer: Clarification of this request indicated that a sampling of Marine Security Guard tables of organization (T/O) would suffice. T/Os for 1955, 1959, 1966, and 1987 have been provided separately.

PILOT INVENTORY

QUESTION: For 1986, 1987, and 1988 identify by type, model and series of aircraft, the number of pilots and flight officers currently on board vs. required.

ANSWER: The total pilot/flight officer requirement is not based on type, model and series of aircraft but rather on category of training received. A comparision of inventory versus requirements for prop, jet and helo categories is provided (The following figures do not include flight students.)

	PILOT INV	PILOT REQ	NFO INV	NFO REQ
			FY-86	
PROP	3137	2972	2086	1676
JET	3565	3908	3256	3111
HELO	3003	3403	-	-
	9705	10283	5342	4787
		FY-87 (PROJECTED)		
PROP	3178	3037	2239	1718
JET	3612	3994	3359	3172
HELO	3044	3479	-	-
	9834	10510	5598	4890
		FY-88 (PROJECTED)		
PROP	3189	3103	2280	1734
JET	3624	4080	3422	3286
HELO	3054	3554	-	-
	9867	10737	5702	5020

FLYING HOURS

QUESTION: Provide the Navy and Marine Corps flying hours planned for use versus those used by fiscal quarter for fiscal year 1985, 1986, and 1987 (to date).

ANSWER: The Department of the Navy does not have an automated system for collecting planned flight hours by quarter from the Operating Forces. Fiscal year budgeted hours are compared with hours submitted in the flying hour cost reports at the headquarters level to evaluate actual flight hours during the execution year. Fleet Commanders require a certain amount of flexibility when executing the flying hour program because operational and training requirements are sometimes dynamic in nature. Therefore, the Department does not require Fleet CINC's to provide a quarterly execution plan for flying hours. However, annual budgeted Navy and Marine Corps TACAIR/ASW flight hour data for fiscal years 1985, 1986 and 1987 together with actual hours for those years is provided below. The fiscal 1987 planned data was taken from the FY-87 column of the President's 1988 Budget and includes $70 million in requested supplemental funding. The Department of the Navy underexecuted the planned flight hours in FY 1986 due to the 5.9% Gramm/Rudman/Hollings funding reduction.

Navy:

Planned FY 1985 Hours	Actual FY 1985 Hours	Planned FY 1986 Hours	Actual FY 1986 Hours	Planned FY 1987 Hours	Oct-Feb Actual FY-1987 Hours
610,364	621,046	620,462	613,410	604,630	242,119

Marines:

Planned FY 1985 Hours	Actual FY 1985 Hours	Planned FY 1986 Hours	Actual FY 1986 Hours	Planned FY 1987 Hours	Oct-Feb Actual FY-1987 Hours
288,156	291,802	310,129	300,638	320,955	122,560

QUESTION: How can the Navy and Marine Corps fly the budgeted FY 1988 flying hour program given the aircrew shortages and declining number of the pilots being trained.

ANSWER: To compensate for temporary aircrew shortages the Department of the Navy budgeted to 97.1 of its authorized aircrew allowance in FY 1988 which is consistent with actual manning rates in FY 1986.

As outlined in the table below, pilot training rates (PTR) are increasing not decreasing, and as such; the Department of the Navy expects aircrew manning to improve during the next several years.

Pilot Training Rates (PTR)

Category	FY 1986 Pilots	FY 1987 Pilots	FY 1988 Pilots
Strike	460	479	510
Maritime	334	351	370
Rotary	530	538	565
Total	1,324	1,368	1,445

Additionally the Primary Mission Readiness (PMR) system adopted several years ago determines TACAIR/ASW flight hour requirements. It is constrained to 87% of requirements to allow for fluctuations in actual aircrew manning.

Given the above factors, aircrew manning is not expected to adversely impact flying and the Navy considers the flight hours in the FY 1988 budget are executable and are necessary to maintain TACAIR/ASW crews current in their warfighting specialties.

PILOT ASSIGNMENT

QUESTION: Will pilot assignments be extended to sustain in increased operating tempo?

ANSWER: Should national commitments require it, any military member could be extended in an assignment.

PILOT RETENTION

QUESTION: Provide pilot retention data/rates for Navy and Marine Corps by type, model and series aircraft for 1983, 1984, 1985, 1986 and 1987. Break out retention rates by first tour, second tour, and beyond. What are the projected rates in the 1988 budget?

ANSWER: Retention data is not maintained by type, model and series of aircraft and is thus not available. Navy presently uses the Minimum Service Requirement (MSR) method of computing officer retention, which provides only overall pilot data. Currently under development, with an expected operational date of this Fall, our Comulative Continuation Rate retention system will provide pilot retention data by pilot category (e.g., jet, prop, helo) and by major aircraft type (e.g., attack, fighter, etc). Because it varies considerably among individual officers, tour length is not maintained as a retention variable. Navy has provided 49% as a projected pilot retention rate for FY-88 budget. MSR retention data for Navy pilots is as follows:

FY-83	FY-84	FY-85	FY-86	Projected FY-87
58%	56%	53%	46%	49%

Marine Corps pilot retention data is based on a simple continuation rate (100% minus the percent of the total pilot force that attrites for any reason) and is as follows:

FY-83	FY-84	FY-85	FY-86	Projected FY-87
95.9%	93.4%	91.9%	91.1%	89%

QUESTION: Why is Marine Corps pilots retention better than Navy's?

ANSWER: USN/USMC use different procedures to measure pilot retention, making a direct comparison of retention numbers difficult. However, it is true that Marine Corps, unlike Navy, does not have a pilot shortage. One possible negative factor impacting upon Navy pilot retention is the amount of time spent away from families. The 1985 DOD Survey of Officers, Enlisted Personnel, and Military Spouses found that 32 percent of Navy officers spent five or more months a year away from their families compared to only 22 percent of Marine Corps officers surveyed. Family separation has historically been sighted as a significant factor in Navy officer retention.

FLYING HOURS

QUESTION: Provide cost per flying hour breakout for Navy and Marine Corps flying hours for each type of fixed wing and helicopter aircraft.

ANSWER: The following is a table of Navy and Marine Corps TACAIR/ASW fixed wing and helicopter cost per hour rate estimates for FY 1988:

Cost Per Hour ($)

Fixed Wing:

Type	FY 1988 Cost/Hr	Type	FY 1988 Cost/Hr	Type	FY 1988 Cost/Hr
P-3	1,363	S-3	1,837	OV-10	670
A-4	1,014	A-6	2,128	A-7	1,522
AV-8	1,644	KC-130	1,269	E-2	1,519
FA-18	1,804	F-14	2,281	F-4	2,567

Helicopter:

Type	FY 1988 Cost/Hr	Type	FY 1988 Cost/Hr	Type	FY 1988 Cost/Hr
H-1	597	H-2	1,209	H-3	929
H-60	707	H-53	1,567	H-46	976

QUESTION: How are A-6E and CH-53 restrictions affecting 1987 flying hour execution? How will these impacts affect 1988 flying hours.

ANSWER: Restrictions on the A-6E and CH-53 do not appear to be having an impact on the FY 1987 flying hour program. As shown in the table below both the A-6E and the CH-53 are executing within approximately 2% of the projected annual plan.

	FY 1987 Annual Plan Hours	FY-87 Actual (Oct-Feb) Hours	%
A-6E	58,862	26,229	44
CH-53	42,575	16,736	39

With the exception of a slight increase in the utilization rate, the Department of the Navy does not expect the A-6E and CH-53 restrictions to have an impact on the FY 1988 flying hour program.

A-6E/F PROGRAM

QUESTION: Some published reports have stated that 40 A-6E's have been grounded since 1985. Is this true?

ANSWER: On average approximately 40 A-6E's have been grounded since 1985. As A-6E's reached the end of their Fatigue Life Expended (FLE) limits on the wing, the aircraft is temporarily grounded awaiting rewing. Through FY-87, grounded A-6E's have been receiving new metal wings. Beginning in FY-88, a new composite 8800 hour wing will be installed on A-6E's.

FLYING HOURS

QUESTION: How many individuals are currently assigned to staff positions and require flying hours to maintain minimum flight qualifications. How many flying hours per month are allocated to each officer in this status.

ANSWER: The FY 1988 Flying Hour Program specifically allocates approximately 18 hours/crew/month for 196 individuals assigned to Carrier Air Wing and Marine Air Group staff positions that involve flying.

While staff hours are not specifically allocated in areas other than TACAIR/ASW, pilots assigned to staff positions in Fleet Replacement and other squadrons fly instructor and logistic flights respectively as required.

QUESTION: What are the hours per crew per month for Navy and Marine Corps aircraft (by type and series). What are the hours per crew by sea based and land based aircraft? What are the hours per crew by fleet (3rd, 7th, etc.)?

ANSWER: The following table shows both the required and budgeted hours/crew/month for TACAIR/ASW aircrews in Navy and Marine Corps in FY 1988 by Type Model Series (TMS):

Hours/Crew/Month

Navy

T/M/S	Req Hrs	Bud Hrs	T/M/S	Req Hrs	Bud Hrs
A-6E	25	22	KA-6D	25	22
A-7E	25	20	FA-18A	25	22
F-14A	25	24	E-2C	39	32
EA-6B	25	23	SH-3H	29	27
S-3A	32	28	SH-60B	30	24
SH-2F	29	23	P-3C	52	41
Total	Navy Weighted Average			31	26

Marine

T/M/S	Req Hrs	Bud Hrs	T/M/S	Req Hrs	Bud Hrs
AV-8B	21	20	A-4M	23	22
A-6E	25	22	F-4S	23	22
CH-46E	27	22	CH-53	28	22
OV-10	23	21	KC-130	49	27
AH-1	27	23	FA-18A	25	23
RF-4B	23	22	EA-6B	25	21
Total	Marine Weighted Average			27	23
Total	TACAIR/ASW Weighted Average			29	25

The Department of the Navy does not program flight hours by sea and land based functions or by fleet e.g. 3rd, 7th etc. The number of flight hours programmed for TACAIR/ASW aircrews is based on various events contained in the individual training syllabus for each TMS aircraft.

SHIP OPERATIONS

QUESTION: Please provide budgeted versus actual steaming hours (and days) and budgeted, versus actual underway hours (and days) by ship class for 1986 and 1987 (to date). What is the 1988 estimate by class?

ANSWER: The Department of the Navy's budget estimates for ship operations are based on an aggregate number of ship operating months per year, the number of ship years supported and the estimated operating costs. The Department neither budgets nor tracks ships steaming hours by ship class.

FY-88 PROGRAMMED SHIP MANNING

QUESTION: Please provide the manning levels (required and actual) by ship class? Please provide personnel by MOS for each class of ship.

ANSWER: FY-88 programmed manning levels for ships from representative ship classes, by designator and rating, follows:

SHIP		DESIG /RATING	BILLETS AUTH (FY88)
NIMITZ (CVN 68)			
	OFFICERS	11XX	30
		13XX	46
		14XX	1
		15XX	4
		16XX	6
		18XX	1
		2XXX	11
		31XX	10
		41XX	3
		6XXX	28
		7XXX	19
	SUBTOTAL		159
	ENLISTED	AB	5
		ABE	108
		ABF	69
		ABH	87
		AC	35
		AD	26
		AE	17
		AF	1
		AG	15
		AK	61
		AMH	6
		AMS	12
		AN	372
		AO	113
		AQ	11
		AS	7
		ASE	12
		ASM	33
		AT	44
		AV	1
		AW	15
		AX	10
		AZ	28
		BM	46
		BT	7
		DK	14
		DM	1
		DP	27
		DS	41
		DT	12
		EM	154
		EN	13
		ET	101
		EW	14
		FC	33
		FN	139
		GM	1
		GMG	9
		HM	38
		HT	56
		IC	39
		IM	2
		IS	29
		JO	8

UNCLASSIFIED

NIMITZ (Cont)

	LI	6
	LN	4
	MA	13
	MM	294
	MR	8
	MS	152
	NC	5
	OS	78
	PC	11
	PH	22
	PN	30
	PR	5
	QM	15
	RM	58
	RP	7
	SH	43
	SK	44
	SM	16
	SN	108
	TM	6
	WT	30
	YN	38
SUBTOTAL		2,685
TOTAL		3024

L Y SPEAR (AS 36)

OFFICERS	10XX/11XX	4
	14XX	1
	2XXX	7
	31XX	7
	41XX	2
	6XXX	21
	7XXX	11
SUBTOTAL		53
ENLISTED	BM	28
	BT	21
	DK	14
	DP	12
	DS	3
	DT	8
	EM	13
	EN	10
	ET	7
	FN	32
	GMG	5
	HM	15
	HT	15
	IC	7
	JO	1
	LN	2
	MA	3
	MM	26
	MS	47
	NC	3
	OS	2
	PC	3
	PN	10
	QM	3

L Y SPEAR (Cont)

		RM	19
		RP	3
		SH	16
		SK	60
		SM	3
		SN	77
		YN	5
	SUBTOTAL		473
TOTAL			526
LOS ANGELES (SSN 688)			
	OFFICERS	11XX	12
		31XX	1
	SUBTOTAL		13
	ENLISTED	EM	12
		ET	17
		FN	1
		FTG	6
		HM	1
		IC	5
		MM	31
		MS	7
		QM	5
		RM	6
		SK	2
		SN	3
		STS	15
		TM	6
		YN	3
	SUBTOTAL		120
TOTAL			133
SPRUANCE (DD 963)			
	OFFICERS	11XX	16
		31XX	2
		61XX	1
	SUBTOTAL		19
	ENLISTED	BM	14
		DK	2
		DS	7
		EM	7
		EN	13
		ET	11
		EW	6
		FC	21
		FN	14
		GM	1
		GMG	7
		GMM	7
		GS	1
		GSE	8
		GSM	20
		HM	2
		HT	9
		IC	5
		IS	1
		MA	1
		MR	1
		MS	14

	NC	1
	OS	28
	PC	1
	PN	3
	QM	5
	RM	11
	SH	4
	SK	4
	SM	5
	SN	41
	ST	1
	STG	20
	TM	2
	YN	5
SUBTOTAL		303
TOTAL		322
REID (FFG 30)		
OFFICERS	11XX	10
	31XX	2
	61XX	2
SUBTOTAL		14
ENLISTED	BM	14
	DK	1
	DS	2
	EM	7
	EN	9
	ET	8
	EW	4
	FC	11
	FN	7
	GMG	4
	GMM	3
	GSE	6
	GSM	8
	HM	2
	HT	6
	IC	3
	MA	1
	MR	1
	MS	9
	OS	18
	PC	1
	PN	2
	QM	4
	RM	10
	SH	5
	SK	5
	SM	4
	SN	27
	STG	7
	TM	2
	YN	2
SUBTOTAL		193
TOTAL		207

TICONDEROGA (CG 47)			
	OFFICERS	10XX/11XX	18
		31XX	2
		61XX	2
		71XX	2
	SUBTOTAL		24
	ENLISTED	BM	14
		CTM	1
		CTO	3
		CTR	3
		DK	2
		EM	6
		EN	12
		ET	12
		EW	6
		FC	37
		FN	16
		GM	2
		GMG	5
		GMM	7
		GS	1
		GSE	8
		GSM	19
		HM	2
		HT	14
		IC	7
		MA	1
		MR	1
		MS	15
		NC	1
		OS	37
		PC	1
		PN	3
		QM	5
		RM	14
		SH	5
		SK	6
		SM	6
		SN	36
		STG	19
		TN	2
		YN	5
	SUBTOTAL		334
TOTAL			358
AVENGER (MCM 1)			
	OFFICERS	11XX	5
	SUBTOTAL		5
	ENLISTED	BM	4
		EM	5
		EN	11
		ET	4
		FN	3
		GMG	1
		HM	1
		HT	3
		IC	2
		MS	4
		OS	3
		PN	1

AVENGER (Cont)			
		QM	3
		RM	4
		SK	2
		SM	1
		SN	8
		STG	6
		YN	1
	SUBTOTAL		67
	TOTAL		72
KNOX(FF1052)			
	OFFICERS	11XX	14
		31XX	2
	SUBTOTAL		16
	ENLISTED	BM	12
		BT	24
		DK	2
		EM	8
		EN	2
		ET	10
		EW	6
		FC	13
		FN	14
		GM	2
		GMG	6
		GMM	3
		HM	2
		HT	10
		IC	5
		MA	1
		MM	27
		MR	1
		MS	11
		NC	1
		OS	28
		PC	1
		PN	2
		QM	5
		RM	13
		SH	4
		SK	4
		SM	6
		SN	21
		ST	
		STC	22
		TM	2
		YN	3
	SUBTOTAL		271
	TOTAL		287

SHIP OPERATIONS

QUESTION: Please provide the steaming hour/day plan versus hours/days used by quarter for 1985, 1986, and 1987 to date.

ANSWER: The number of underway days, planned versus actual, for 1986 and 1987 (to date), is provided below. The

Navy does not track steaming hours by quarter, and did not routinely monitor underway days in 1985.

FY 1986

1st Quarter Plan/Actual	2nd Quarter Plan/Actual	3rd Quarter Plan/Actual	4th Quarter Plan/Actual
10,214/9,687	10,800/9,847	10,815/10,557	9,476/10,385

FY 1987

1st Quarter Plan/Actual	2nd Quarter Plan/Actual
8,895/9,254	9,289/10,197

MIDWAY PROBLEMS

QUESTION: Please identify specific actions being taken to resolve the MIDWAY problems. When will corrective work begin, and what is the estimated cost?

ANSWER: Specific actions to correct MIDWAY roll characteristics and deck wetness problems are currently under review at the Naval Sea Systems Command (NAVSEA).

USS MIDWAY had blisters installed during late 1986 to improve hull strength and correct other naval architectual problems. These problems had developed over time due to modernization of MIDWAY and, in particular, the modernization to the ship's flight deck in the 1960's.

The MIDWAY blister design was confirmed by both analytical modeling and tank testing prior to installation. During sea trials after installation of the blisters, the ship exhibited roll characteristics that made aircraft handling and maintenance difficult. This condition had not been predicted by either the modeling or tow testing.

Current design efforts to correct the unfavorable roll characteristics have centered on reducing the water plane area (area at ship's waterline) to increase the roll period from 13 seconds to approximately 15 seconds by notching the installed blisters. The estimated cost, rough order of magnitude, is $40 million.

In addition to the roll problem, NAVSEA is currently reviewing various alternatives to solve deck wetnes problems on the ship. These include modifications to the blister and the possibility of a bulbous bow configuration. The wetness problem is of such magnitude that corrosion control on embarked aircraft is a concern. The design development is still underway and will not complete until June 1987. No cost estimate has been developed pending results of the study to correct deck wetness.

A formal technical design review will be held in early June 1987 to finalize design requirements. Contract design is proceeding on the notching of the hull and a final contract design package is expected to be completed by the end of July 1987. A restricted availability is scheduled for late September 1987 to make the necessary modifications.

QUESTION: Will maintenance and modifications for other ships be deferred to provide funding for the MIDWAY? If so, which vessels? How will the 1988 program be affected?

ANSWER: Currently, maintenance and modernization of other ships will not require deferral. At this time no 1988 programs will be affected.

A critical design review is scheduled for June 1987 after tank tow tests and analytical modeling are completed on the proposed modifications to the MIDWAY hull. At that time budget quality estimates will be developed. The current rough order of magnitude estimate to modify the MIDWAY hull is $40 million.

SHIP PERSONNEL

QUESTION: Please provide the growth in Navy endstrength for 1988 by hull number. What is the delivery schedule the 1988 budget was based on? What is the current delivery schedule for these vessels?

ANSWER:: The table below indicates the increase in endstrength required in FY 88 to man new construction surface ships.

Hull Nr	Off E/S	Enl E/S	Orig Del Dte (FY)	Cur Del Dte (FY)
BB 64	41	1258	89	88
CG 56	7	247	88	88
CG 57	15	288	88	88
CG 58	17	295	88	89 (4 mo. delay
CG 59	10	315	89	89
CG 60	19	115	89	89
CG 61	19	115	89	90 (5 mo. delay)
CG 62	7	39	89	89
DDG 51	7	39	90	90
FFG 61	14	193	89	89
MCM 6	2	40	89	89
MCM 7	0	36	89	90 (2 mo. delay)
MCM 8	0	35	90	90
MCM 9	5	65	90	91 (4 mo. delay)
MCM 10	5	66	90	90
MCM 11	0	49	91	91
MCM 14	5	67	92	92
TAO 191	1	20	89	89
TAO 192	1	20	90	90
LSD 44	14	284	88	88
LSD 45	21	49	89	89
LSD 46	7	37	89	89
All others	15	129	-	-
Total	232	3801	-	-

MAINTENANCE AND REPAIR

QUESTION: Provide the number of personnel assigned to ship Intermediate Maintenance Facilities since 1980.

ANSWER: In FY-80 there were 16,555 personnel assigned to afloat and ashore Ship Intermediate Maintenance Facilities. In FY-86, there were 22,595, including the new Trident Refit Facility.

QUESTION: Provide the dollar level of work performed by Ship Intermediate Maintenance Facilities since 1980.

ANSWER: In FY-80 the afloat and ashore Ship Intermediate Maintenance Facilities directly performed an estimated $153M worth of work (in FY-86 dollars). In FY-86, they directly performed an estimated $274M, including the new Trident Refit Facility.

QUESTION: Are the Shore Intermediate Maintenance Activities (SIMAs) industrially funded?

ANSWER: No. They are funded from Operation and Maintenance, Navy appropriations.

QUESTION: Provide the number of personnel assigned to Ship Repair Facilities (SRFs) since 1980.

ANSWER: In FY-80 there were 6,483 personnel assigned to Ship Repair Facilities. Fin FY-86 there were 7,429.

QUESTION: Provide the dollar level of work performed by SRFs since 1980.

ANSWER: In FY-80 the Ship Repair Facilities directly performed an estimated $190M worth of work (in FY-86 dollars). In FY-86, they directly performed an estimated $158M.

QUESTION: Why aren't the SRFs industrially funded?

ANSWER: Naval Industrial Fund (NIF) activities tend to be very large organizations which receive multiple orders from many different customers. NIF is the only system which can adequately account for costs over this varied base. The SRFs, on the other hand, work only for the Pacific Fleet, and therefore, there is not a need to spread costs accurately to many customers. Accordingly, we believe there is no benefit to using a NIF system for the SRFs.

SAVINGS - SHIP REPAIRS

QUESTION: What savings have been realized through public/private competition for ship repair?

ANSWER: On those assignments to public shipyards where there was a private bidder, the cost was $214.5 million dollars less than if the awards had been made to the private sector.

MAINTENANCE AND REPAIR

QUESTION: Please provide a status report on public/private competition of aircraft repair?

ANSWER: The Navy has implemented a plan to conduct two pilot competitions similar to the pilot program implemented in the shipyard competitions. The two aircraft pilot competitions are the P-3C Update III modification program and a selected quantity of F-14A overhauls (standard depot level maintenance). The competitions, managed by the Naval Air Systems Command, will be conducted in fiscal year 1987 with plans to award the contracts by the second quarter of fiscal year 1988. The competitions will be conducted in the same manner as competitions for major systems acquisitions.

COOPERS AND LYBRAND

QUESTION: Please list the Coopers and Lybrand efficiency recommendations for Navy shipyards and NARFs, and where these recommendations have been specifically reflected in the Navy budget. What are the total savings due to these recommendations? Which Coopers and Lybrand recommendations were not accepted/integrated into the budget and why? How much has the Navy paid Coopers and Lybrand for its consulting on the industrial fund project?

ANSWER: Approximately 130 shipyard and 100 NARF recommendations made by Coopers and Lybrand were accepted and integrated into the Navy Industrial Improvement Program implementation plan. Areas encompassed in the review included general management, materials management, financial management, management information systems, capital equipment management, engineering, operations management and organization. Copies of the specific study findings and recommendations are available if desired. Cost incurred to date for the services provided by Coopers and Lybrand are approximately $35.6 million with projected savings of $500 million for shipyards and $200 million for NARFs reflected in the aggregate Navy budget submission. Additional contractor support will be obtained to facilitate the completion of the Navy Industrial Improvement Program implementation effort.

QUESTION: Did Coopers and Lybrand evaluate Ship Intermediate Maintenance Activities (SIMAs) and Ship Repair Facilities (SRFs)? If so, what were their recommendations and where (be specific) are these recommendations reflected in the 1988 budget?

ANSWER: SIMAs and SRFs were not included in the Coopers and Lybrand review.

Questions Submitted by Senator Johnston

V-22 Osprey

I am pleased to read in your Posture Statement (pg 36) that the V-22 Osprey remains the Marine Corps' highest priority. I understand however, that the advance procurement for the Osprey has slipped from FY-1988 to FY-1989.

Question: Why has the Marine Corps' highest priority been slipped one year?

Answer: As you have noted, the Osprey remains my highest priority. The advanced procurement request has moved from FY-1988 to FY-1989. The reason for this is a combination of:

- a delay, from May 1985 to April 1986, in the Milestone II decision. This was brought about by a change in the Navy's acquisition strategy which resulted in significant future cost avoidance, while continuing to maintain the 1991 delivery of Osprey to the Marine Corps.
- a realization that the late 4th Quarter FY-1989 planned contract award was no longer a necessity, nor fiscally prudent, to retain the necessary 1991 delivery. The move of this planned contract award to the 1st Quarter of FY-1990 resulted in the move of the requirement for advanced acquisition monies to the 1st Quarter of FY-1989.

The result is the request contained in the 1988 President's Budget, with amplified cost data provided in the December 1986 Selected Acquisition Report. The program you have been presented is technically and fiscally sound, and meets the urgent needs of the Marine Corps.

Landing Craft Air-Cushion (LCAC)

Last month Admiral Lyons testified before this committee and was very enthusiastic about recent tests of the LCAC.

Question: Do you share his enthusiasm?

Answer: Yes. Although the results of the most recent operational test have not been announced, we are optimistic and confident that they will be good and will, in fact, support a near term, full production decision.

Question: Do you think the program could be accelerated?

Answer: I will defer answer to that question to the Navy Program Manager. I will say, however, that inasmuch as this craft is so very important to our developing future amphibious warfare concepts, I am anxious to see it in full production.

QUESTION: Do you think the LCAC program can be accelerated?

ANSWER: Yes. The combined (Textron and Lockheed) yearly production capability is 14-16 craft. The current procurement schedule however, takes into considerations the requirement to establish and maintain a balanced ship procurement program that will meet total warfare requirements. Additionally, the LCAC program is structured to be in consonance with the LHD, LSD-41 and LSD 41 (CV) programs. These ships are uniquely designed to carry and support LCAC operations.

LEASING OF SHIPS

QUESTION: In some instances, I understand that the Navy is considering the leasing of ships in lieu of purchase. I understand the Coast Guard is also looking into the feasibility of such an arrangement. If so, would you agree that any ships leased should be built by American yards to ensure the vitality of American shipyards. I understand foreign companies could establish a U.S. corporation or subsidiary (I won't say corporate shell) to compete for these contracts.

ANSWER: The Navy is not, at this time, considering leasing specific ships or ship types. In our support ship and sealift ship programs, we always examine the alternative of leasing rather than buying. To date, our leased ships have involved ships built in U.S. shipyards and a few ships built in foreign shipyards which underwent major conversion in U.S. shipyard. In the latter case, the company from which the ships are leased in a U.S. corporation.

SHIPBUILDING CAPABILITY

QUESTION: When Asst. Secretary Pyatt testified before this committee I asked him what opportunities he saw over the next 5 years for our domestic shipbuilding industry, and if we could maintain an adequate shipbuilding capability. He answered that to sustain the 600 ship Navy we would need to build about 20 ships a year, I also see that in your statement (p.31), he also said that without some form of commercial construction coming along, he would expect to see a shrinkage in the industrial base.

Do you agree? What are the implications of such a decline?

ANSWER: I agree that, without additional commercial construction, the U.S. shipyard industrial base will decline. The Navy alone cannot support the shipbuilding industry that grew in the 1970's as a result of subsidized commercial shipbuilding. Our studies indicate that, even if the industrial base declines to the level that Navy work alone can support, these will still be adequate capacity for mobilization.

BUDGET PRIORITIES

QUESTION: On October 14, 1986, Admiral Crowe wrote a memo to Deputy Secretary Taft concerning accelerated aircraft carrier procurement. Are you familiar with this memo? In the memo, Admiral Crowe states, "given current pressures to minimize real growth in defense budgets, the question becomes one of whether the Navy will have sufficient funds to execute the proposed program without taking money away from other high priority programs or mission areas."

He later says that it would be unwise to plan on more than one percent real growth and that before agreeing to accelerate carrier procurement, it would be advisable to know the larger picture. It looks like the fiscal climate is much more austere than you may have planned for. Is the carrier priority as high today as it way, say, six months ago?

Admiral Crowe also states that "when painful choices have to be made, I would give first priority to sustainability, modern munitions, ASW, and the SSN program."

Do you agree with these priorities, and if not, what are your priorities?

ANSWER: Yes, I am familiar with the memo, and I agree that the priorities cited by Admiral Crowe are critically important as evidenced by our recent, as well as our current, budget. We continue to fund at least three attack submarines per year throughout the FYDP. This level allows us to attain and then sustain the 100 attack submarine force level required. However, in going beyond the SSN it should be recognized that today the fleet is more ready to go in harm's way than at any time in peacetime history. In the past six years, overall combat readiness for surface ships has improved by 111 percent, for nuclear attack submarines by 69 percent and aviation squadrons by over 200 percent. Net increase in spare parts and ammunition has been far greater than the actual increase in funding applied to it. The reason has been the dramatic reforms in the way we have managed these funds with the application of various economies to spare parts procurement. As everyone is well aware, during the 1970s as a result of neglect, sustainability and war reserves disappeared. During that time, the Navy was held to such low levels of procurement of ammunition, missiles, and torpedoes that five years ago we did not have sufficient stocks to load out the reduced fleet of 479 ships, even once, with full magazines. We had less than a week's supply of the most important air defense munitions. Such enormous shortages created over a decade of unilateral disarmament in the 1970s are not going to disappear overnight. But six years of sustained growth in our ammunition accounts has now begun to refill our munitions stockpiles.

In addition to the priorities that the Chairman mentioned there are others that are also extremely important. Probably at the top of the list, and Admiral Crowe might agree, is people. Modernizing our forces and maintaining the force structure is also critical if we are to meet the threat. Our budget is balanced and funds the high priority programs. The carrier procurement strategy which saves money, contributes to funding other priority programs.

CARRIERS

QUESTION: You indicate that you can save approximately $3 billion by buying two aircraft carriers under a multiyear procurement (p. 73). Is that right? I understand a CBO staff analysis is critical of your methodology in calculating the savings. The Analysis says the savings are more like $900 million in 1988 dollars. Would you comment on this?

ANSWER: The Navy's estimate of about $3 billion in savings was based on a straight forward comparison of budget dollars required to procure replacement carriers. The $6.9 billion required to procure replacement CVNs that were displayed in the DOD Extended Planning Annex (EPA) for Fy 1994 and Fy 1996. The savings of "about $3 billion" is the difference, in budget year dollars between the two numbers. The figures cited by the committee are based on a CBO staff paper which approached the savings analysis in a different manner, using FY 83 constant dollars and made various assumptions. These techniques introduce significant errors into the analysis that need to be addressed.

First the inflation dividend is incorrectly calculated. Data, in FY 83 dollars, was provided by the Navy to allow a comparison of the CVN 72/73 return costs with Navy pricing of CVN 74/75 to demonstrate that the Navy's estimate was consistent with the earlier carrier buy. However, the CBO analysis used this as a baseline for the inflation calculation, a methodological error. A correct calculation would have compared the inflation savings from procurring CVN 74/75 in FY 1990 and Fy 1993, versus FY 1994 and FY 1996.

The staff paper discounts the savings resulting from the different Navy acquisition strategies for CVN 74/75 procurement by stating that only the "heel-to-toe" portion of the acquisition strategy should count as a savings. This misses the fundamental point that the new acquisition strategy to advance the CVN replacement program was a composite strategy having two basic elements, two carriers being bought on a multi-ship basis, and their being bought "heel-to-toe" with the carriers already in production with each other. The Navy program takes advantage of the productivity savings inherent in a stable, "new carrier" construction workforce at Newport News. The achieved savings that result from this strategy would not have been possible with the procurement of CVN 74 and CVN 75 under the original plan because the builder would have experienced a substantial break in the production line. We are now in the same position we were for the FY 1983 procurement of CVN 72/73 in that Newport News has a new carrier under construction and the "heel-to-toe" production of two follow-on carriers offers significant savings.

SKIPPER LASER-GUIDED PRACTICE BOMB

QUESTION: With regard to the "Skipper" laser-guided practice bomb, $10 million was provided specifically for the development of a low-cost, laser-guided training bomb along with continued in-house development of a cluster warhead and the adaptation of the low-cost anti-radiation seeker to Skipper. The Navy was directed to provide these funds to China Lake Naval Weapons Center in a timely manner for this work. There is a strong indication that a large part of the FY-1987 funds are being used for another purpose. Will you assure me that you will follow the Senate report language associated with Skipper?

ANSWER: FY-1987 funds for development of laser-guided practice bomb, in-house development of a cluster warhead and adaptation of a low-cost anti-radiation seeker to Skipper have been forwarded to the Naval Weapons Center, China Lake. In support of these programs, there are projects such as development of the TRUCK (generic air-to-ground flight test vehicle), and investigations of inertially aided munitions, fiber optics, and the uncooled focal plan array which contribute directly to the navigation, terminal seeker and submunition dispensing schemes necessary for these Skipper improvements. A letter to Senator Stennis from the Secretary of the Navy was sent 10 April 1987 which provides a full report on the funding breakdown and program descriptions and status.

QUESTIONS SUBMITTED BY SENATOR BYRD

MINE WARFARE SHIPBUILDING PROGRAMS

The Navy is now managing two mine warfare shipbuilding programs. The first is aimed at building 14 ocean-going AVENEGER (MCM 1) class mine countermeasures ships. The second is aimed at building 17 smaller coastal mine clearance ships. Both programs have experienced problems. The MCM program encountered early difficulties with the ship's hull design and it's engines, and more recently the Navy has expressed strong displeasure with the performance of the shipbuilders involved in meeting program cost and scheduleob objectives. The second program was to have led to the construction of 17 CARDINAL (MSH 1) CLASS mine sweeper/hunter ships that would have employed a surface effect ship (SES) hull design and a hull structure sheathed in glass reinforced plastic (GRP). A test section of an MSH hull, however, failed a shock test last year when the explosion caused the GRP to delaminate from the rest of the hull structure. As a result of this difficulty in particular, the MSH program was canceled, and a new replacement program was initiated to take its place. This new program, which will employ a modified Italian mine warfare ship design using a conventiional monohull, is referred to as the MHC 51 class coastal mine hunter program. In summary both of the Navy's mine warfare shipbuilding programs have encountered significant difficulties and delays, in contrast to most other current Navy shipbuilding programs.

QUESTION: Why has the Navy experienced so many difficulties in its mine warfare shipbuilding programs when its other shipbuilding programs have been executed on the whole much more smoothly? Is there something peculiar to mine warfare ships that is behind the problems? Are the problems related in any way to the fact that the U.S. did not build mine warfare ships for many years before the MCM and MSH programs were initiated?

ANSWER: We have found through long experience that a stable shipbuilding plan that funds new construction ships at a long term rate to meet force sustaining and force building goals is the most effective approach. When we suffer boom or bust funding cycles we have gaps in production of needed ship types. This happened in mine warfare ships and the long gap in production between our minesweepers in the 1950s and our modern minehunters now has contributed to a loss of engineering expertise in the Navy and industry and a loss of production expertise in industry relative to foreign countries. Foreign countries have maintained modest but sustained programs in mine warfare vessels and modern minehunting systems.

Modern mine hunting vessels are distinctly more complex than the minesweepers of earlier eras. We are now trying to reestablish our national position in modern mine warfare vessels both in the Navy and in industry. Successful delivery of the lead ship MCM 1 this summer will be an important step, although both shipbuilders in the MCM program have significant production difficulties to overcome even with delivery of MCM 1. Another key effort is to introduce the low risk MHC program as rapidly as possible as we have structured it. The MHC program will bring the proven Italian LERICI class mine hunter technology to this countrky with production of the lead ship at the Sayler Marine facility in Savannah, Georgia by the team of Intermarine USA (an American subsidiary of the firm that built the LERICI class and two other derivative classes in Italy) and Hercules of Delaware. The MHC program will also bring in a second production source in the United States with the ships in the FY 89 budget.

Our plan as currently structured is essential to reestablish our national position. Once this plan is in place we need to sustain long term mine warfare vessel shipbuilding and avoid boom and bust funding cycles that contributed to our current difficulties in this area.

QUESTION: What is the Navy's assessment of the performanceto date of the shipbuilders involved in the MCM program? What steps has the Navy taken to improve their performance? What recent evidence is there that the shipbuiders' performance is improving? How many months or years is the Navy now behind its original schedule for this program?

ANSWER: Shipbuilders in the MCM program have not performed up to our expectations. We were able to replace the Navy management team on this program, but we have had to stay with the shipbuilders we initially selected. We have capped contracts to limit the government's exposure and we have substantially extended contract awards to bring the shipbuilders back on track. For example, we still have not awarded contracts for one FY 85 ship and two FY 86 ships that have been appropriated, and we did not request additional ships in FY 87 deferring the last three ships to our FY 88/89 budget. We are also considering the possibility of competing among more than our two currejt shipbuilders for the remaining ships not yet under contract. The single most positive event in the MCM program will be a successful delivery of the lead ship anticipated this summer. Even if this success is achieved though, our two shipbuilders still have to demonstrate improved performance on the follow ships. We have little evidence at this point that would make us optimistic that we will see schedule improvement in the follow ships. In fact we could see additional delay before the shipbuilders turn their production difficulties around. We estimate that we are now about two years behind the schedule we originally planned for introducing the MCM class ships.

QUESTION: In retrospect, was the Navy being too optimistic in choosing an MSH design employing an SES hull design and a GRP-sheathed hull structure? Did this choice make for a high-risk program? If so, why was a high-risk design chosen, when a conventional monohull design was available for selection? If it was not a high-risk approach, then why did the program encounter problems serious enough to warrant its cancellation? How many months or years is the Navy now behind its original schedule for this program? What is the schedule for the new replacement MHC program, and why should Congress be confident that this new program will be executed without similar difficulty and delay?

ANSWER: We took a risk on MSH that the surface effect hull form would provide operational benefits over a monohull.

We recognized that in the end, technology risks might prove too difficult to overcome, but the prospect for operational gain was important enough for us to try the higher risk approach. As the program evolved, the technical risks were not contained and we had to terminate the program. This setback has caused us to fall about three years behind schedule on introducing coastal minehunter capability into the fleet. That is why our MHC program as we have structured it is now so important. We have selected a proven low risk design concept for MHC based on the Italian LERICI class. Ten ships of the LERICI class and two derivative classes have been built in Italy. LERICI class ships are in service and four ships built in Italy have deployed from Italy to Malaysia and are in service with the Malaysian Navy

We will adapt the LERICI design to carry our cjombat system and our MHC hull will be built in an existing larger hull mold that the Italians have already built for a follow-on program they had planned. We will bring this mold to Sayler Marine in Savannah, Georgia where the team of Intermarine USA (an American subsidiary of the Italian LERICI shipbuilder) and Hercules of Delaware will build the lead ship. This low risk approach will use a proven design concept that is in service, will use an existing hull production mold, and will avoid a third party technology transfer. We will obtain the technology directly from the shipbuilder who has successfully built LERICI class ships. Also, with the FY 89 MHC ships we have requested, we will introduce a second source and expand the technology base for modern mine hunters in the United States.

Mine warfare vessels are one of the most critical shortfalls we have against potential hostile nations and we cannot afford another false start in our shipbuilding programs. We urge strong support of our low risk MHC program so that we can achieve the most rapid build up now possible of our mine warfare ship forces.

BSY-1 AND FY-89 SUBMARINE COMBAT SYSTEMS

QUESTION: Given the earlier problems with the SUBACS R&D effort, and now the more recent problems with the installation of the BSY-1 system into SSN-751, why should Congress be confident that the FY89 combat system program will be executed according to its advertised schedule and within its cost ceilings? What steps has the Navy taken to insulate the FY89 combat system program from delays in the BSY-1 program? What steps has the Navy taken to ensure that any problems in the FY89 combat system program won't cause significant delays in the overall SSN-21 submarine shipbuilding program? In particular, what has the Navy done to ensure that the software development for the FY89 combat system won't cause inordinate problems?

ANSWER: The FY89 Submarine Combat System will be executed on schedule and on cost.

The Program schedule is reasonable and includes two years of System Design Definition and six years of Full Scale Development. This schedule is almost twice the design schedule of the BSY-1.

The program has stable, well defined requirements developed by both contractor teams and the Navy. Contractors expect to use low risk technology. The existence of stable software development tools provide high confidence. Both contractors expect to achieve significant software capture. Fixed price contracts drive down risk. In January 1988 the Navy will enter into a fixed price contract with the successful competing contractor for Full Scale Development. The Navy's Design-to-Cost program and the competitive System Design Definition has caused the prime contractors to converge on affordable combat system designs of low to medium risk.

The FY89 Submarine Combat System is not affected by the recent SSN-751 installation drawing problem. In addition, any delays in the FY89 Submarine Combat System development will not cause the SSN 21 to slip.

The Navy has focused its management on software risk reduction to ensure the software development remains low to medium risk. The success of this management effort revolves around four points:

- clearly defined system performance specifications
- stabilized requirements
- minimize software interaction by separation into separate computers.
- evaluation of design decisions prior to code generation by the use of models.

The Navy is making the necessary investments to reduce schedule risk. Computers, signals processors and mass memories are being procured early for code generation. The contractors will demonstrate those modules that are most critical to combat performance early in Full Scale Development. The combat system hardware is based on provem technology fully tested at sea prior to the delivery of the SSN-21.

QUESTION: What chance is there that some of the first SSN-21 submarines will go to sea with combat system missing some software elements? How many submarines could be affected? In what ways and to what degree will the missing software elements degrade the combat performance of these submarines? If the submarines go to sea without these software elements, how long might it be before these software elements are "retrofitted"?

ANSWER: If the combat system remains adequately funded, the first SSN-21 will have all software capabilities prior to ship delivery. The software is being developed over a six year Full Scale Engineering Development period. In addition, the combat system is scheduled to be delivered a year prior to the delivery of the ship.

Should problems occur in software development, a phased software delivery can be made without delaying the SSN-21 delivery. The amount of combat performance degrade, if any, cannot be predicted now since the software development is on track. If a phased software delivery occurs, the full combat capability would be installed during Post-Shakedown Availability, prior to the SSN-21 first operational deployment.

QUESTIONS SUBMITTED BY SENATOR SASSER

MILITARY CONSTRUCTION

Mr. Secretary, as you know, I am the Chairman of the Subcommittee on Military Construction Appropriations. Now, last year, the Military Construction Subcommittee was constrained to no real growth under the Budget Resolution and the allocation from the full Appropriations Committee. That meant we had to cut the request by 20 percent. It has been my goal as the new Chairman of the subcommittee to avoid a repeat of that past problem. Such cuts in fiscal year 1988 would, in my view, cut to the bone and would begin to force my subcommittee not only to cut quality-of-life projects, but also high-priority new missions. If we had to cut the request by one-fifth this year, construction associated with the homeporting initiative could be jeopardized, although the subcommittee and Isupport expeditious completion of the homeporting-associated construction activities.

I am afraid, though, that the early indications this year are not good. As you know, the House Armed Services Committee two days ago cut the military construction request by $1.4 billion. In fact, that cut represents 28 percent of the entire DoD-wide cut in budget authority. Now, military construction represents only 3 percent of the whole DoD budget. To expect MilCon to take 28 percent of the cut, then, is just not right.

As you know, both Budget Committees have approved 050 allocations in the $289 billion BA range. If spread across the board equally to each account, then the requests would have to be cut a little over 8 percent. That is what I hope we can accomplish in MilCon. An 8 percent BA cut would reduce the request by around $800 million. While that would be tight, I think we could live with it and still fund the high-priority projects, including homeporting. It is certainly a lot better than a $1.4 billion cut.

But, given the action of the House Armed Services Committee,I am not at all sure we will be able to keep the MilCon cut within reasonable limits. To do so, we are going to need your help. In the past, the Pentagon has sent over the MilCon budget at the first of the year with large increases and, then, quite frankly, failed to adequately support it. Without the support of the senior levels of the Department, deep cuts were made. This year, we will face the same situation, I fear, unless we hear from the senior levels. We are going to need your testimony here this morning. But what we may need even more is an expressed willingness by the services that you are willing to give up budget authority for procurement or operation and maintenance in order to protect your high-priority military construction needs.

Question. Will you be in a position to do that? Is the military construction budget of such sufficient priority?

ANSWER: Budget authority from other accounts has already been given up to protect our high priority military construction needs. This is clearly demonstrated by the $1,844, 072, 000 fiscal year 1988military construction repuest which is 33.9 percent greater than the $1,376,715,000 appropriated in fiscal year 1987. The Navy has chosen to put at risk nearly a half billion dollars of its scarce resources by requesting additional funds for military construction in lieu of other high priority needs.

SUBMARINES

QUESTION: Mr. Secretary, Do we have a submarine gap? What can you tell us in open session about new Soviet advances in submarine technology?

ANSWER: A gap exists in the number of submarines. The Soviet submarine force numbers some 300 active units composed of some 35 classes of submarines. The U.S submarine force cannot match the Soviets in numbers and, therefjore, must maintain the distinct qualitative advantage over the Soviets.

The Soviets have progressively upgraded the qualitative aspects of their submarine force and are narrowing the technological lead long held by the U.S. Among those technological areas given emphasis are:

- radiated noise reduction
- sensors
- weapons capabilities

The Soviets have made imporvements in radiated noise in their recently introduced classes. The Soviets have continued additional efforts to reduce detectability of their submarines, [deleted]. Submarine sensors have also improved in the last decade, particularly in the area of active sonar systems. Weapons ranges and capabilities have also improved, in some cases ahead of the sensors with which they are deployed. Up to 1970 the Soviets had the quantity edge, but our quality gave us an overwhelming edge in submarine superiority. As we moved in the 1980's, our quality edge started to decrease largely due to the advent of the new Victor III and AKULA class submarines into the fleet. The Soviets have retained the quantity edge, but we have kept a reasonably comfortable, but narrowing, margin in submarine superiority.

QUESTION: Have any of these Soviet advances come about as a result of the intelligence they received from the Walker spy ring?

ANSWER: Although it would be hard to say that any specific Soviet advances are a direct result of the Walker spy ring, [deleted] [deleted]. This probably provided the Soviets a vehicle to redirect their efforts and attention to improving their technology, or obtaining technology elsewhere, to support imporvements in their submarine force. The Soviets' improvements that have been seen were accelerated as a result of the Walker spy ring.

MINESWEEPING

QUESTION: Recently concern has been raised in the Congress that the United States does not have sufficient minesweeping capability to meet the Soviet's growing capability. Do yo agree? And what do you propose to meet the threat?

ANSWER: We consider our minesweeping capability at this time to be marginal. Two factors are at work to change the status quo. On the negative side, it is true that continued Soviet production of increasingly sophisticated mines is making the U.S. Navy's minesweeping mission more difficult. However, projecting to completion ongoing MCM platform and equipment programs, as well as planned procurement of Airborne Mine Countermeasures helos and equipment, our mine countermeasure posture will improve significantly. A limited modern sweeping capability will remain as a residual shortfall; however, progress in the development of modern sweep gear is currently being made, both through our work on new deep mechanical sweep gear and through our participation in NATO Project Group 22, "Mechanical Sweep Equipment for the 1990's and Beyond."

QUESTIONS SUBMITTED BY SENATOR STEVENS

NAVY BUDGET OVERVIEW

QUESTION: The Navy requests 7.2% growth for FY 1988. How does this relate to the overall DoD 3% real growth target for FY 1988? Is this adequate growth to sustain fleet and Marine operational requirements?

ANSWER: Real program growth in the Department of the Navy's FY 1988 budget is 2.4 percent, compared to the overall DoD total of 3.0 percent.

The 3.0 percent real growth target was intended to be an average over time, based on the investment shortfalls faced by the Administration when it took office. In the first four years of this Administration, the Navy exceeded the 3.0 percent real growth target, but in the last four years of Administration budgets (FY 1986-1989), the Navy's requests contain an average of .2 percent real program growth.

The 2.4 percent real growth level is adequate to sustain fleet and Marine operational requirements. The Navy's first priorities for the second four budget years of the Administration have been to finance the personnel, munitions and spare parts required to maintain our achievements in readiness and sustainability and, to the extent affordable, improve upon them. For example, our operation and maintenance account has grown over $5.0 billion in size in constant dollars since this Administration's first budget, about three times greater than what we have achieved in either of the capital investment areas (APN/SCN) of our budget. Our munitions and support procurement appropriations (WPN/OPN) have grown by over $6.0 billion in size over the same period; again, an increase greater than our capital investment accounts. Our highest priorities continue to be readiness and sustainability.

QUESTION: Personnel costs now account for over 50% of the defense budget. How do you propose that we live within the proposed budget resolution that calls for deep reductions in defense while protecting personnel?

ANSWER: The Navy simply would not be able to protect personnel while making reductions such as those proposed in the budget resolution. We would be forced to take reductions in all areas and while we would attempt to do so in a balanced manner, personnel levels would certainly be affected.

QUESTION: Is civilian employment one area we might consider reducing in order to preserve other parts of the budget?

ANSWER: The civilian employment estimates which we have submitted are in balance with the program workload contained in the budget, while at the same time incorporating substantial savings for economy and efficiency initiatives. Furthermore, the Department of the Navy has already taken aggressive action to control civilian costs in execution of the budget while assuring accomplishment of authorized program. Any reductions in civilian resource levels would disrupt the balance between workload and the required work force, and would introduce substantial turmoil in the execution of budgeted program.

QUESTION: While the procurement budget is declining, the Navy's request includes increased funding for Trident II missiles and the down payment on two carriers. Aren't these increases "crowding-out" adequate funds to continue cost efficient production rates in other programs?

ANSWER: No. Increases and decreases in individual procurement programs from prior year levels are normally reflected in every budget. Within tht total funding available, we have attempted to maintain efficient production rates whenever possible. Obviously, within a declining procurement budget we must make more trade-offs than with an increasing budget. For example, one trade-off was the reduction of the production rate of the F/A-18 substantially below what we proposed in the FY 1987 President's Budget. However, this decision was based in part on the fact the Congress appropriated a much lower production rate in FY 1987. On the other hand, we have maintained our goal of an average of five new construction AEGIS platforms per year.

NAVY CARRIER AND AIRCRAFT ISSUES

QUESTION: Will the Navy budget be able to maintain the 15 carrier battle group force structure with replacement of carriers at three to four year intervals?

ANSWER: Yes. The Navy's current replacement program is to start a new CVN every three years beginning with CVN-74 and CVN-75 in FY-90 and 93 respectively. The next carrier start will then be requested for FY-96. This schedule will maintain the 15 CV/CVN force level with only minor adjustments required to the 45 year (SLEP +15) service life of our conventionally powered carriers.

QUESTION: Does the aircraft procurement plan proposed in the fiscal year 1988 and 1989 budgets support the delivery of the two replacement carriers in the 1990's? What shortfall will occur in the F-14D aircraft in particular.

ANSWER: The FY 88 and FY 89 APN supports the aircraft requirements for 14 active and 2 reserve air wings.

Fiscal year 1988 and 1989 F-14D procurements are the initial procurements for that aircraft and do meet initial requirements.

QUESTION: Recognizing that the carriers to be retired are the smallest in the fleet what additional aircraft requirements are associated with introducing 94,000 ton Nimitz class nuclear carriers into the fleet:

ANSWER: Additional aircraft required when changing from a Midway Air Wing to a Notional Air Wing follows:

20	F-14
4	A-6
1	EA-6B
1	E-2C
10	S-3

The Notional Air Wing requires 16 less F/A-18 aircraft than the Midway Air Wing.

STRATEGIC SEALIFT ISSUES

QUESTION: Please comment on the availability of sealift to support your wartime missions?

ANSWER: The U. S. flag merchant fleet has declined in the number of militarily useful ships available and is not capable of meeting the total sealift requirements for national defense. We require the right types of ships in sufficient quantities and readily available to deploy, initially the unit equipment for our fighting forces, followed by sustaining supplies to meet the requirements of the Unified Commanders. The decline of our U. S. flag fleet has made the immediate deployment of unit equipment largely a Government responsibility.

QUESTION: What percentage of the planned sealift requirement for full mobilization can be provided from the Ready Reserve Force, through the FY 1987 program? What percentage if you include all U. S. Flag vessels and vessels owned by U. S. interest operated under flags of convenience?

ANSWER: The lift requirement for strategic sealift is about one million short tons of unit equipment. The FY 87 Ready Reserve Force Program will provide capacity for 21 percent of this lift requirement. Including all Military Sealift Command (MSC), U.S. Flag, and Effective U. S. Controlled (EUSC) ships capable of carrying unit equipment, capacity for about 76 percent of the lift requirement is provided.

QUESTION: Would it be accurate to state that the sealift situation is getting worse, not better today? What options are available to us in order to avert a complete disaster someday when we need sealift but its simply all gone?

ANSWER: The overall sealift situation is getting worse. Traditionally our nation has depended on its Merchant Marine to provide needed military sealift as a by-product of peacetime commerce. Economic forces beyond the ability of the Department of Defense to alter, have eroded the viability of the U. S. Flag fleet. Measures such as the Ready Reserve Force attempt to buffer the military impact of this decline but fall short of meeting defense sealift requirements. Navy is investigating the potential of technology improvements such as Surface Effect Fast Sealift Ships to provide a multiplier effect to compliment conventional sealift investments. The Commission on Merchant Marine and Defense is looking at the military sealift question in depth.

QUESTION: Do you believe that the $43.4 million requested for FY 1988 represents a viable solution to the sealift crisis? What level of funding would it take to obtain the ships we need before they are lost to the market?

ANSWER: $43.4 million in FY 1988 represents only a single year's purchase of ships for the RRF and should not be viewed as a total solution to our sealift shortfall. We have a current goal of 120 RRF ships by the end of FY 1992 and we continually study the investments versus the needed capability. However, in a worst case scenario, I do not believe that the Navy can afford to take on directly the provision of all shipping and manpower to meet that needed capability. We are looking to the Commission on Merchant Marine and Defense to define the needed course of action and are helping the Commission in their deliberations in every way that we can.

NAVY - HOMEPORTING ISSUES

QUESTION: What changes have occurred in the Homeporting plan since last reviewed by this committee.

ANSWER: The Strategic Homeporting Plan remains basically unchanged since reviewed by the committees during the FY-87 MCON review. The funding profiles by homeport and overall limitations remain as they were presented except for minor adjustments between Gulf Coast sites that resulted from further planning and engineering analysis. Since the FY-87 appropriation was substantialy below the budget request for the Everett and Staten Island projects the funding requirements have been reprogrammed in the FY-88 to FY-90 programs. A complete funding profile for Strategic Homeporting Plan is attached.

Two inter homeport adjustments were made in the Strategic Homeporting Plan during the last year. The City of Mobile has provided a new site for their homeport at the Theodore Industrial Park since the original Pinto Island site was contaminated with hazardous wastes. In San Francisco, the Navy has designated Hunters Point as the preferred alternative homeport site due to significant environmental and cost factors that were identified during the planning process for berthing a battleship and cruiser at Treasure Island. Neither of these changes effect the timing or the funding plan for Strategic Homeporting Plan.

STRATEGIC HOMEPORTING MILITARY CONSTRUCTION PROGRAM SUMMARY

FISCAL YEAR

SITE	FY-86	FY-87	FY-88	FY-89	FY-90	TOTALS
STATEN ISLAND	$58,161	52,950	37,434	10,480	28,975	188,000
EVERETT	$16,775	43,580	85,720	64,520	61,405	272,000

GULF COAST MILCON PROGRAM

	FY-88	FY-89	FY-90	TOTALS BY SITE
INGLESIDE	38,800	31,850	20,550	91,200
PENSACOLA	16,200	14,320	1,180	31,700
PASCAGOULA	17,100	25,700	2,000	44,800
MOBILE	10,700	19,700	5,400	35,800
GALVESTON	29,000	1,690	2,310	33,000
LAKE CHARLES	10,300	5,000	2,200	17,500
TOTALS IN FY'S	122,100	98,260	33,640	254,000

PACFLT BBSAG

	FY-88	FY-89	FY-90	TOTALS BY SITE
SAN FRANCISCO	22,370	17,530	34,520	74,420
LONG BEACH	5,120	5,460	--	10,580

Strategic Homeporting Total: 799,000

QUESTION: Does the $273 million you are requesting in FY-1988 represent an increase or decrease from the amount projected last year for this program?

ANSWER: The FY-88 request for the Strategic Homeporting Plan is approximately $31 million less than the original FY-88 Strategic Homeporting Plan funding plan of $304 million due to program adjustments resulting from overall budget limitations.

QUESTION: Does any component of your homeporting request for FY-88 exceed the limits placed last year on spending for a single homeport facility?

Can the Navy proceed efficiently within the limits agreed to last year?

ANSWER: The FY-88 request is consistent with the previously submitted profile. The Everett request is $3 million over and the Gulf Coast project are $1 million over the original funding profile as a result of project planning to achieve the most cost effective construction program. Downward adjustments at other sites in FY-88 have been make to accommodate budgetary limitations as discussed above.

The Navy is prepared to immediately execute the FY-88 program at all homeporting sites. The projects have been planned to provide econonomical and efficient construction phased over the several years of Strategic Homeporting funding.

QUESTION: How does plan to initiate homeport development in the Gulf Coast and California relate to the Navy's request for shipbuilding for FY-1988?

ANSWER: Homeport development in the Gulf Coast and California is not related to the FY-1988 Navy Shipbuilding and Conversion request. The Strategic Homeporting Plan is required to accommodate the current fleet and those additional ships previously authorized and appropriated to complete the buildback to the 600 ship Navy.

QUESTIONS SUBMITTED BY SENATOR KASTEN

MSH AND MHC

QUESTION: Last year, I understood that you had cancelled the MSH program and intended to go ahead with the development of the MHC. Both the Senate and the House agreed that a sole source design contract could go to an Italian firm. In our 1987 conference report for the CR, we agreed to letting the Italian builder enter into a consortium with a U.S. builder.

I understand that the Italian firm has leased or bought a small ship repair yard in Savannah, Georgia. It is not currently in the ship repair business. How do you see this in accord with the conference language?

ANSWER: Intermarine S.p.A has entered into a joint venture agreement with the Hercules Aerospace Corporation to form Intermarine USA. They have a lease, with an option to buy, the Sayler Marine Corporation shipyard facilities in Savannah, Georgia. Intermarine visited and had discussions with more than 30 U.S. shipbuilders. Intermarine had two requirements in their selection of a shipyard facility: that they would control the company to ensure the construction technology and processes were not altered; and, that the facility could be modified to start construction as soon as possible. The Sayler facility was evaluated best to meet these requirements. The Navy had no part in that evaluation or decision; however, we are of the opinion that it meets the test of the Congressional language. Although Sayler is not currently building ships, it is a working repair yard, as are most U.S. shipyards.

MCM/MHC

QUESTION: A few years ago, we approved the Navy's plan to build the high mix MCM and the low mix MSH. The cost estimate the Navy has provided for the new low mix MHC shows that it will cost as much as the MCM. Also I understand the new design is 50% larger than the old LERICI class, that is, a change from 540 tons to 740 tons. Does the MHC have the same mission requirements as the MSH?

ANSWER: The MHC cost estimates have not changed from those directed by Congress in the house Conference Report to accompany H. J. Resolution 738 dated 15 October 1986. The lead MHC ship cost will be approximately 75 percent of the expected cost of MCM 1. The MHC, as designed, will be about 200 tons larger than the Italian LERICI. The LERICI design was selected by the Navy because it was a proven glass reinforced plastic ship design technology with ten ships built or under construction for three navies and came closest to meeting the Navy's needs. The MHC mission requirements are such that modifications to the LERICI design were necessary. these included the incorporation of the U.S. Navy combat system suite, communiciations equipment and other electronics equipment. In addition to the weight increases caused by these equipments, a volume increase to accommodate these equipments was also required which in itself added weight. The ship has been sized in order to comply with the operational requirements of the ship and to meet U.S. Navy ship construction standards. The MHC has the same mission requirements as the MSH.

MHC

QUESTION: Concerning the tooling up and labor used for the lead ship: Are the costs assumed with the fabrication of the mold chargeable to the MHC contract? How much do you expect it to cost? Will the mold belong to the U.S. Government? Will the new Government tooling laws apply to this effort? Will the labor force used to build these ships come solely from the United States?

ANSWER: The cost of the fabrication of the molds will not be a direct charge to the MHC program. The special tooling required for the construction of the ship will be capitalized and depreciated in compliance with normal accounting procedures under the Tax Reform Act of 1986. Thus, the charge to the MHC program will be an indirect, overhead, cost spread over all work in the yard over a number of years. The MHC's share of this cost, being dependent on the amount of other work in the yard, is unknown at this time.

The Government will not own the mold.

The new Government tooling laws have been applied to this program. The Navy contract does not allow any special tooling costs to be a direct cost to the Navy.

Intermarine USA will, for the most part, consist of a U.S. work force. Intermarine S.p.A. and Hercules will each provide a certain number of personnel to the new company to assist in establishing the company and program to allow start of construction in the most timely manner. These personnel will be primarily in the management areas of the company with some foreman level personnel from Intermarine S.p.A. necesssary to provide the glass reinforced plastic production expertise and training.

QUESTIONS SUBMITTED BY SENATOR D'AMATO

F-14 PROGRAM

QUESTION: The Navy has stated they intend to compete the remanufacturing of the F-14A's to F-14D's. Is it a competition for all elements or just for kit installation? What are the anticipated savings the Navy expects to achieve through competing the F-14 upgrade package?

ANSWER: The F-14D remanufacture program is not a "kit installation" program. The remanufacture competition is for the total rewiring, overhaul, and service-life extension of the aircraft as well as the installation and integration of new avionics, radar, and engines. Many of these new components will be based on competitive pricing in addition to the competition for the remanufacture effort itself.

The current procurement profile, which includes 127 new production and 400 remanufactured aircraft represents a 73% increase in numbers of F-14D's available for combat for a 19% increase in cost versus the previous profile of 304 new production aircraft. It is believed that by creating a competitive environment the costs will be minimized.

QUESTION: Please define a modification and a remanufacturing? Is specifically designated modification money being used for the remanufacturing?

ANSWER: A modification is a configuration change to an inservice aircraft to increase the capability, improve reliability, and maintainability, extend the service-life or convert the aircraft to perform a different mission. Remanufacturing occurs when the scope of change is so extensive that the aircraft is administratively stricken from the Navy inventory and then provided as a piece of government furnished material for remanufacturing. Modification funds are not being used for remanufacturing. Under a modification program, the equipment is purchased with APN funds and installed with O&M,N funds. Under a remanufacturing program, APN pays for both as well as long lead efforts and material which are covered under the advanced procurement line item.

QUESTION: How many remanufactured F-14's will be procured each year? What is the estimated time out of inventory per aircraft? How will this time out of inventory for F-14's affect the air interdiction role of a 15 aircraft carrier force?

ANSWER: The F-14D remanufacture schedule is as follows:

	FY90	FY91	FY92	FY93	FY94	FY95	FY96	FY97	FY98	FY99	FY00
Procurement	7	18	30	48	60	60	60	60	57		
Deliveries			7	18	30	48	60	60	60	60	57

Estimated time out of inventory per aircraft is approximately one year, and sufficient F-14 airframes should be available to meet the requirements of a 15 aircraft carrier force.

C-2 AIRCRAFT

QUESTION: A 1980 study on Carrier On-board Delivery (COD) aircraft recommended additional C-2 aircraft. The production of C-2s is scheduled to end during this fiscal year. Does the

Navy need more C-2 aircraft? If so, closing the production line at the end of this year will mean higher restart costs. Why didn't the Navy request C-2 aircraft for fiscal year 1988?

ANSWER: The 1980 CNA COD study recommended 39 operating C-2 aircraft for resupply of the then current 13 CV battle groups (nine deployed). The on-going CNA COD/VOD study estimates that as many as 45 operating C-2A aircraft may be desired for resupply of a 15 CV battle group (11 deployed). The current procurement of 39 reprocured C-2A aircraft provides 30 operating aircraft, the remaining nine being in training squadrons and the SDLM pipeline. Additional C-2s were not included in the President's budget due to affordability.

SUBCOMMITTEE RECESS

Chairman STENNIS. All right, gentlemen, if there's nothing more, we'll take a recess now subject to the call of the Chair.

[Whereupon, at 11:45 a.m., Thursday, April 9, the subcommittee was recessed to reconvene at the call of the Chair.]

DEPARTMENT OF DEFENSE APPROPRIATIONS FOR FISCAL YEAR 1988

TUESDAY, APRIL 21, 1987

U.S. SENATE,
SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS,
Washington, DC.

The subcommittee met at 9:31 a.m. in room SD-192, Dirksen Senate Office Building, Hon. John Stennis (chairman) presiding.

Present: Senators Stennis presiding, Proxmire, Johnston, DeConcini, and Stevens.

DEPARTMENT OF DEFENSE

DEPARTMENT OF THE AIR FORCE

STATEMENT OF HON. EDWARD C. ALDRIDGE, SECRETARY OF THE AIR FORCE

OVERVIEW OF AIR FORCE BUDGET REQUEST

OPENING STATEMENT OF CHAIRMAN STENNIS

Chairman STENNIS. Ladies and gentlemen, our subcommittee will come to order.

I will first make an announcement about the attendance, or the lack of attendance. The Republican members of the subcommittee have been called to the White House to an important meeting at this hour, 9:30 a.m.

Presumably, they will finish that meeting before this session is over and will come to this meeting.

I will certainly be interested in them doing that, or doing it as nearly as they can. If they don't get here, though, we will arrange another hearing so they will have the benefit of it.

It is certainly important that every member of this committee and subcommittee have a proper chance to appear and to make such points and ask such questions as he may wish.

Now, we want to say a special word of welcome to you gentlemen who are here today to testify. Yours is very important testimony. Its value is not exclusively measured by the number who are not in attendance, or by those who are in attendance.

This makes everything go into the record. Every witness invited here has the right to have his views, whether he is asked a question or not, he has a right to offer those views for the record, and they will certainly be put into the record.

Any Senator has a right to question witnesses. Those who have been summoned here as witnesses can make such points as you see fit. It is your duty to do that.

If they happen to be ruled out or neglected, why, that is somebody else's responsibility.

BUDGET REQUIREMENT

This will be a long row, not today particularly, but to meet the requirements of the budget act, which as you know is law. We didn't meet those requirements last year, we just threw everything in the same basket at the last and passed it out in one bill.

Now that will hurt the Air Force to follow that. It will hurt the Senate as a whole, and the country as a whole. I think we've got to reform ourselves in that field, and the Senate committee and the Senate must stand on its constitutional rights and perform its constitutional duties.

So it will be our effort to try to do that in following these matters through.

Now we're glad to have here the Honorable Edward C. Aldridge, Secretary of the Air Force; Gen. Larry D. Welch, Chief of Staff of the Air Force. We want to give you a special word of welcome, and, as I said, we hope that this meeting includes a number of questions and comments by every member of this subcommittee.

I will make part of this opening statement that I have here, and ask that the rest of it be included in the record at the proper place.

We will hear the testimony on the programs requested for the fiscal year 1988 by the Air Force.

Secretary Aldridge has served four separate administrations with distinction, and most recently, was Undersecretary of the Air Force prior to assuming his current position.

Senator STEVENS. Good morning, Mr. Chairman.

Chairman STENNIS. Good morning, Senator Stevens. I am glad you got here. You are a hard working member of this subcommittee. We're glad to have you.

I have made a few preliminary remarks, and will proceed here with an introductory statement. We will have more attendance, I think.

Now, Mr. Secretary, back to you—this committee has taken note of the reductions made by the Air Force from the program projected last year for fiscal year 1988. The fact remains that those reductions were not sufficient to meet our deficit reduction targets.

Now I am sure you are aware, Mr. Secretary, of the defense budget reduction proposed by the budget committees of both the House and the Senate. Both of these measures would effectively freeze defense spending at last year's level.

I am concerned that, while these numbers may not adequately reflect our national security needs, they may be the limits placed on this committee.

I am especially concerned over the level of outlays proposed in the budget resolution, and would be interested in your thoughts on this issue.

The bottom line, Mr. Secretary, is that cuts that will have to be made, and the committee will be looking to you and General Welch to lay out the highest priorities in this year's budget.

In closing, I take particular note, Mr. Secretary, of the comment in your prepared testimony that, as stewards for the taxpayers' investment, you are committed to getting the most defense from every tax dollar.

I share with you that commitment, and I hope we can work together this year to ensure that both the Congress and the Air Force live up to this responsibility.

Now, I never consciously undertake, to give you gentlemen advice and to tell you a pattern of conduct you ought to follow. But you and everyone else in these key positions in government, military or civilian, have got to do a better job—and that includes myself—a better job in making the American taxpayers' dollar go farther.

I think we realize that, and I think we have made some headway in that direction. But we have got to try harder. These ends have got to be met; some balanced or near-balanced budget has to be a habit with us rather than an exception; and we can do it.

The American people are capable of making ends meet, and of reaching the goal that they set out to attain. We've done it before in extremity and in easy times, and we can do it again.

Those of us adults in charge of affairs now have no right to take the future away from the youth. So I believe, and I am confident, that we have the capacity, if we try hard, we will come through.

And I believe we will do better this year than we did last year; and perhaps next year better than this year.

Senator Stevens—you gentlemen already know that Senator Stevens is a valuable member of this subcommittee, and has been for several years. We find his work of high quality, and generously given.

So we are glad to have you here, and call on you for some opening remarks if you wish to make them.

Senator STEVENS. Thank you, Mr. Chairman.

I am happy to be here with the Secretary and the General. I do have to leave at 10:30 for a meeting at arms control, Mr. Chairman. But I am happy to be here until that time.

Thank you very much.

Chairman STENNIS. Well, I will call on these gentlemen. If you want to say something further before you have to leave, you can interject.

Senator STEVENS. Thank you.

Chairman STENNIS. All right, Secretary Aldridge, you proceed now in your own way.

PREPARED STATEMENT

Mr. ALDRIDGE. All right, Mr. Chairman, thank you very much.

It is a pleasure to appear before this committee with General Welch to present the posture of the Air Force for 1987, and our budget requests for fiscal years 1988 and 1989.

You already have our formal statement, and I will not review or repeat that statement this morning, but I would like to touch upon a few of the issues of interest to this committee, and certainly of interest to the Air Force.

Chairman STENNIS. Excuse me, do you want that formal statement to be put in the record?

Mr. ALDRIDGE. Yes, Mr. Chairman.

Chairman STENNIS. Is there objection? The Chair hears none, and it is so ordered that it will be placed at this point in the record.

[The prepared statement of Hon. Edward C. Aldridge follows:]

JOINT PREPARED STATEMENT

The Honorable Edward C. Aldridge
Secretary of the Air Force

and

General Larry D. Welch
Chief of Staff, U.S. Air Force

MR. CHAIRMAN AND MEMBERS OF THE COMMITTEE:

Preserving peace, freedom, and independence is America's most fundamental national security objective. To meet this objective, the Air Force has prudently balanced forces and capabilities to deter aggression across the spectrum of conflict. Over the past six years, our program to redress serious shortfalls in force structure, weaponry, readiness and sustainability has been successful. Maintaining this momentum is essential to meeting continuing threats to national security. The FY 88 Air Force budget request will continue to improve these forces and capabilities.

Progress over the past six years includes significant improvements in virtually every mission area. Strategic modernization, including deployment of cruise missiles, increased Minuteman III accuracy, upgraded B-52 avionics, and initial operational capability of both the B-1B and the Peacekeeper missile, has greatly improved our capacity to deter the threat.

The combat capability of tactical air forces has been significantly enhanced. Pilots flying today's airplanes in the air-to-air role with improved missiles, spares and support are 50 percent more effective against today's threat than were their 1980 counterparts against the 1980 threat. Updated airborne warning and control systems can handle three times as many targets as earlier versions. Aircrews in air-to-ground combat can destroy almost twice the number of targets as in 1980. Added capacity, modifications and spares have improved airlift, and we can transport the equivalent of two additional light infantry divisions to Europe in the first ten days of a war.

Congress and the American people have supported improvements, but the current fiscal climate could lead to harmful reductions or even the elimination of programs essential to deterrence. The Soviet Union continues to develop military capabilities far greater than those needed for their own defense. Rapid production of advanced Soviet weapons, expanding global reach of Soviet forces and growing Soviet influence abroad pose major challenges for the US today and in the future.

US military strategy to cope with these threats rests on deterrence. Deterrence is assured when sufficient military capability exists to ensure an adversary no potential gain from an aggressive action against the US, our allies or friends.

A balanced Air Force program ensures that we, in conjunction with our sister Services, build and maintain the nuclear and conventional capability to respond to the spectrum of threats. The FY 88 Air Force budget prudently balances allocations within all mission areas to build, operate and sustain today's forces, while investing in future capability to meet the changing threat.

The effectiveness of our forces depends on getting the most from our resources, and people are our most critical resource. Accomplishing the Air Force mission depends on highly motivated and well-trained people to support our mission priorities. These priorities are to modernize strategic forces, improve readiness and sustainability of general purpose forces, increase airlift capability, modernize and expand tactical forces, and improve our ability to operate efficiently in space.

AIR FORCE PEOPLE

Today more than one million Active, Reserve and civilian Air Force men and women serve to maintain a strong deterrent and a secure nation. These members of the Air Force team are highly motivated, better educated, better trained and more productive than any previous time in our 40 year history. They are also staying with us longer. Quality Air Force people are the foundation of our warfighting capability. We receive an unquestionably high return from our investment in people.

Air Force excellence in the future depends on how well we recruit and retain quality people today. The officer or airman now entering the Air Force will have to acquire the skills to take the Air Force into the 21st century. Despite the increasingly difficult recruiting market, our quality standards have remained high. Addressing our people programs in terms of mission accomplishment and professionalism has led to high motivation, high retention and high productivity. A professional environment, adequate compensation and family support are essential to maintain the quality force needed for readiness--today and tomorrow.

Improved economic conditions and an expanded civilian job market result in increased competition for skilled people. The attractions of civilian airline expansion and employment opportunities in electronics, communications and computers, contrasted to the special demands of military life, make retention a continuing challenge. We must continue to focus our attention on our people and keep them on the Air Force team.

The Air Force and the nation cannot afford to return to the personnel crisis of the late 1970s when pay lagged far behind the civilian sector, benefits were eroding, and many of our people were leaving for better opportunities. Today, military compensation lags behind the private sector by 9.4 percent. The comparability gap reported for our civilian workforce last year was almost 24 percent. This is a critical issue that must be addressed now.

The lack of adequate permanent change of station reimbursements is also a critical personnel issue. For every $3 our people spend on a PCS move, they are reimbursed only $1. The Air Force has reduced overall PCS costs by decreasing the frequency of moves and increasing average time on station to nearly 50 months. Several recent initiatives have reduced operational moves, but when Air Force people must move, we must adequately reimburse them.

In keeping with efforts to curb the cost of defense, the Air Force will begin reducing military strength over the next two years by more than 6000 positions. While military manpower will be reduced, civilian manpower will grow, with an increase of 2800 over the next two years. Although the Active force will decrease by about one percent over the next five years, the Air Reserve Forces are programmed to grow almost five percent by FY 92, a direct result of our effort to move missions and activities to the Air Reserve Forces when it makes economic and operational sense. All components of the Air Force organize, train and equip as a team, and the Air Force aggressively supports the Total Force policy while maintaining a prudent balance to meet peacetime and contingency taskings.

Management initiatives and a tight rein on manpower requirements are paying dividends, but our ability to use limited resources effectively is constrained by arbitrary ceilings. The European troop strength ceiling is the most significant impediment to fielding USAF forces in response to the Warsaw Pact threat. At the same time, non-programmatic reductions in officer strength adversely affect the proper mix of manpower resources. Air Force manpower requirements are established to ensure the right people with the right skills are available to do the job. Arbitrary manpower constraints degrade mission accomplishment in the support base (supply, logistics, R&D) and reduce our qualitative edge in the operation, maintenance and support of quality equipment.

The implementation of the provisions of the Goldwater-Nichols Reorganization Act of 1986 are well underway, and many of the objectives have already been achieved in the joint arena and within Air Force headquarters. The intent of Congress is clearly to increase the authority of the Chairman of the JCS and the unified commanders. The Chairman has reorganized the Joint Staff for better net assessment, preparation of fiscally constrained strategic plans and increased emphasis on joint doctrine, tactics and exercises.

The Air Force has been a leader in providing quality officers for joint duty. We are implementing the joint specialty and improving our management of officers serving in joint assignments. Some of the technical aspects of the law are potentially troublesome, for example, mandatory tour lengths for all joint duty assignments. The Air Force will work with other Services, the JCS and OSD to identify those aspects requiring further legislative action.

In Air Force Headquarters, we will consolidate some functions to increase effectiveness and efficiency. Some functions specified by the law are already consolidated in the Air Force. Others, such as acquisition and comptroller, require reorganization in the Air Staff and Secretariat. This realignment will help us achieve a mandated manpower reduction in headquarters. Over the next two years we will reduce manpower in the Air Staff and Secretariat by delegating more authority to field commanders; however, the same law also levies a 10 percent reduction over the next two years in field headquarters' staffs.

STRATEGIC FORCES

Of all the threats to our national security, none is so potentially devastating as that of nuclear war. Therefore, the strategy and forces necessary to deter nuclear conflict will remain preeminent in our military structure. Restraint and negotiation characterized our efforts to reduce the threat of nuclear war during the 1970s. However, the Soviet Union focused on improving the quality and quantity of their strategic forces in a destabilizing buildup. The Strategic Modernization Program initiated in 1981 has begun to restore balance to the strategic forces. Our commitment to strategic modernization remains strong and sends a message of strong national resolve to the Soviets.

In 1983 the Scowcroft Commission reaffirmed the requirement for the modernization of land-based ICBMs and manned bombers. Since then, we have made significant progress improving ICBM capabilities. The Congress approved deployment of 50 Peacekeeper missiles in existing Minuteman silos and funded a comprehensive evaluation of additional deployment options for the second 50 Peacekeepers.

Peacekeeper is essential as the foundation for an affordable and credible deterrent force, adding prompt, highly accurate weapons to our strategic arsenal in the near term and enduring capability for the long term. In December 1986 the President selected the rail-garrison basing option for development as the next basing mode for the continued deployment of Peacekeeper missiles. The Small ICBM (SICBM) completes our strategic ICBM modernization program and contributes to deterrence and stability by increasing the survivability of the land-based missile leg of the Triad. The SICBM, compatible with survivable road mobile basing modes, has been approved for full-scale development in a single warhead, 37,000-pound configuration, transported on hardened mobile launchers.

Modernization of the manned bomber, the most flexible leg of the strategic Triad, is also proceeding well. The manned bomber's ability to hold at risk a wide variety of Soviet capabilities is vital to deterrence. In the near term, the B-1Bs will assume the penetration role from the oldest B-52s. Concurrently, research and development continues on the new, long-range, low observable, advanced technology bomber that will provide a viable penetrating capability well into the next century.

Two systems add to the essential elements of effectiveness and flexibility in the manned bomber force to counter continuing improvement in Soviet air defenses. The advanced cruise missile, incorporating low-observable technology, will avoid detection while penetrating Soviet defenses, and the aging SRAM-A will be replaced by the SRAM II.

Modernizing continental air defense forces and upgrading ballistic missile and atmospheric warning systems improve our strategic defense. Continued development and testing of an effective antisatellite system is necessary to counter the Soviet's existing capability to hold our vital space assets at risk. An ability to respond in kind is a prudent and necessary deterrent.

Upgrading command, control and communications (C^3) systems is one of our highest priorities in the strategic force modernization program. All strategic offensive and defensive programs are being linked by more survivable and enduring C^3 systems. We are improving our ability to alert and activate the nuclear retaliatory forces by continued development of the Ground Wave Emergency Network and the Milstar satellite system, as well as modernization of the command centers they serve.

We are also pursuing, in concert with the Strategic Defense Initiative Organization, research efforts that could provide a comprehensive strategic defense. Continued emphasis on the Strategic Modernization Program and on the development of defense technologies is key to equitable and verifiable arms control initiatives that seek to reduce nuclear arms, ensure a capable and credible deterrent, maintain security and promote stability.

THEATER FORCES

Highly capable, ready and sustainable conventional forces are an important element of US deterrent strategy. The Soviet Union continues to expand conventional forces, outproducing the US in every category of weaponry and gaining on our qualitative edge in many areas. In this regard, three US programs are particularly worthy of special attention owing to their contribution to conventional deterrence--the Advanced Medium Range Air-to-Air Missile (AMRAAM), the Low Altitude Navigation and Targeting Infrared System for Night (LANTIRN) and the Advanced Tactical Fighter (ATF). Continued procurement of F-15E and F-16C/D aircraft is also vital to modernize and expand our existing tactical air forces.

AMRAAM provides the capability to attack multiple targets during a single intercept in an electronic countermeasures environment. It provides launch and maneuver capability, giving our fighters the combat leverage and improved survivability needed to win air battles when outnumbered. AMRAAM will double the effectiveness of the F-15 at about four percent of the aircraft cost and will increase F-16 air-to-air combat effectiveness six times. For air-to-surface missions, near-term programs provide the much needed ability to attack targets at night and in poor weather to deny Soviet objectives and support the Airland Battle. LANTIRN provides a capability to locate and attack a variety of ground targets around the clock, eliminating an enemy's night sanctuary. The ATF will provide air superiority over current and projected enemy fighters. Supersonic cruise and maneuver, low-observable technology and advanced modular avionics will result in a lethal, survivable ATF that will provide the air cover essential to tactical air support of the Airland Battle.

In Europe, the Ground Launched Cruise Missile (GLCM) continues to bolster NATO deterrence of Soviet mobile systems. GLCM installations are operational in the United Kingdom, Italy, Belgium and West Germany, with the two final installations under construction in the Netherlands and the United Kingdom. These weapons are a major component of NATO's theater intermediate nuclear force.

FORCE PROJECTION

To defend interests worldwide, the US must be able to deploy combat forces rapidly where they are needed. No matter how good our equipment or how realistic our training, our combat forces can only be an effective deterrent if they get where they are needed in time.

Aircraft modifications, increased stocks of spares, and delivery of C-5Bs and KC-10s have increased airlift capability by almost 25 percent. Our FY 87 funding completes the buy of 50 C-5Bs, 60 KC-10s and the cargo-convertible features of the Civil Reserve Air Fleet. By the end of the decade, we will have nearly doubled the strategic airlift capability we had in 1980. Despite this improvement, we will remain significantly below our needed airlift capability.

Requested FY 88 funding continues C-17 development and procures the first two aircraft. The C-17 will modernize the strategic airlift force and provide additional theater capability to complement the C-130, while saving approximately $16 billion and 15,000 people over other airlift alternatives. For the first time, we will field a strategic airlift aircraft with the ability to deliver the full range of Army equipment directly where needed, even into small, austere airfields inaccessible to our current long-range airlift force.

We must also continue to increase our air refueling capability. Air refueling requirements are growing for all strategic and general purpose forces. New engines and additional improvements to the KC-135 provide a 50 percent increase in capability at a fraction of the cost of a new aircraft.

Working closely with OSD and the other Services, Air Force elements of the Special Operations Force (SOF) have been structured to meet theater commanders' requirements. SOF enhancements include additional AC-130s and MC-130s, modification of H-53s to a PAVE LOW III configuration and development of the CV-22. We will continue to modernize and expand SOF capability across the spectrum of conflict.

We must also deal with conflicts occurring below the threshold of theater warfare, such as regional conflict, insurgency and terrorism. Low-Intensity Conflict (LIC) is a broad term used to characterize conflict not involving direct confrontation between the superpowers. The Center for Low-Intensity Conflict, established with the Army at Langley Air Force Base, will increase understanding of this challenge. We are also developing an aircraft that will operate in a restrictive airfield environment common to LIC.

READINESS, SUSTAINABILITY AND INSTALLATIONS

The Air Force investment in force structure and modern weapon production can only be translated into a warfighting capability with adequate attention to readiness and sustainability. Modern, ready forces form the foundation of our capability to engage an enemy effectively at the onset of combat. Soviet perception that the US has the capability to respond effectively is essential to deterrence.

Our success in combat is dependent on a balance of sufficient force structure, modern equipment, well-trained personnel, effective repair facilities, sufficient spare parts, appropriate munitions and adequate fuel stocks. Our readiness goal is to provide the resources for fielded forces to perform their missions. Sustainable forces must have the staying power to fight through and beyond an initial period of combat. They depend on the nation's ability to replace resources consumed in battle.

Building and maintaining readiness and sustainability is a continuing process, requiring a prudent balance among spending areas to achieve realistic goals. The FY 88 Air Force budget request places a high priority on improving the combat readiness as well as the staying power of our forces. Although the pace will be slowed, our FY 88 funding request will enable us to increase spare parts stocks and equipment inventories for mobility and tactical forces, improve the inventory of modern munitions and train more effectively.

The condition of Air Force installations also directly affects combat capability. Runways, taxiways, aircraft shelters, missile silos, launch control centers and maintenance buildings must be ready to function during hostilities. Structures, such as medical facilities, military family housing, airmen dormitories, dining halls and community/recreational facilities, provide for our people's basic needs, contribute to their morale, welfare and productivity and help the Air Force retain quality people. The Military Construction Program

(MCP) funds in this year's Air Force budget have been carefully designed to support the mission requirements and readiness posture underlying the strategy, providing quality facilities to enhance productivity and to retain our professional force.

SPACE AND TECHNOLOGY

Across all mission areas, space systems are an integral part of the US military force structure. Since 1958, the US has relied increasingly on space-based systems to provide support to all Services in such vital areas as communications, weather, surveillance and warning, and navigation. The Air Force is responsible for organizing, training and equipping forces to use space to support our national security objectives. To ensure that the US continues to take advantage of the unique attributes space provides, the Air Force has developed a comprehensive long-term strategy.

The first element of our strategy is to develop and maintain assured access to space. The Challenger loss and mishaps to other launch vehicles last year highlighted the need for a more diverse approach to space transportation. The Air Force program is designed to ensure access to space regardless of single element failures in the space transportation infrastructure. Because of congressional support for our complementary expendable launch vehicle program, Titan IV, we are close to achieving that goal. Our initial launch capability is scheduled for October 1988.

Second, the Air Force is developing a long-term survivability enhancement program for space systems critical to national security. In addition, we are continuing development of enduring, integrated surveillance systems to provide the National Command Authorities with unambiguous warning of attack.

The Air Force Space Command has improved significantly the Air Force's ability to support and control space assets and associated ground-based elements. In September 1985 US military space assets were formally integrated into the unified command structure with establishment of the US Space Command (USSPACECOM). This command has consolidated operational control of US military space systems for joint use in wartime and is the focal point for identifying military requirements in space. The arrangement recognizes the fact that space forces, like land, sea and air forces, are best employed under the control of a single commander.

To ensure we continue to deter the Soviet threat, the Air Force is pursuing those technologies with the greatest potential military payoff. These include technologies designed to improve our industrial base, as well as programs identified by Project Forecast II offering the greatest potential for technological breakthroughs to enhance our deterrent strategy into the 21st century.

MANAGING RESOURCES

The Air Force recognizes the complex challenges from a growing Soviet threat and limited US fiscal resources available for defense. As stewards for the taxpayers' investment, we are committed to getting the most defense from every dollar.

The Air Force is meeting these challenges with a comprehensive, integrated approach to management, looking for new and better ways to get the most combat capability for our investment. Improvements include aggressive contract auditing to reduce acquisition costs, the Zero Overpricing Program, improved spare parts management, new approaches to quality and productivity, and improved reliability and maintainability of new and fielded weapon systems. These improvements create better combat capability, reduce operating costs and lower manpower requirements.

Our budget was developed considering a broad range of new acquisition management practices. Procurement procedures have been improved, and acquisition processes have been streamlined to ensure a more responsive system. Specific programs and procurement strategies include improving stability, baselining programs, increasing competition, using a second source when practical, breaking out components, employing should-cost reviews and work measurement standards, and ensuring quality through judicious use of warranties.

The Air Force is also becoming a much more demanding customer. The majority of our 100,000 contractors provide products or services as agreed upon; we hold accountable those who do not. To date, we have received $9.4 million in voluntary refunds for overcharges, and at one point last year, we were withholding more than $250 million in progress payments. Our aggressive Fraud, Waste and Abuse Program resulted in a cost avoidance of $1.1 billion in FY 86.

The Air Force goal for the future is to continue to implement the recommendations made by the President's Blue Ribbon Commission on Defense Management. In spite of the progress made, the Air Force recognizes the concerted effort required to improve the way we do business, to regain the public's confidence, and to continue to protect the investment in a strong defense that has been made over the last six years.

SUMMARY

The year 1988 will be crucial to our plans to continue force modernization and improve readiness and sustainability. The balanced approach will provide the combat capability essential to counter the threat. This year we will reach critical milestones in all mission areas. With congressional support, we will continue to ensure a favorable global balance of military power within the bounds of fiscal responsibility.

EDWARD C. ALDRIDGE, JR.
SECRETARY OF THE AIR FORCE

Mr. Edward C. "Pete" Aldridge Jr. is Secretary of the Air Force.

Mr. Aldridge was born August 18, 1938, in Houston and spent his youth in Shreveport, Louisiana. He received a bachelor of science degree in aeronautical engineering from Texas Agricultural and Mechanical University in 1960, and a master of science degree, also in aeronautical engineering, from the Georgia Institute of Technology in 1962.

Prior to joining the Department of Defense in 1967, Mr. Aldridge held various staff and management positions with the Douglas Aircraft Co., Missile and Space Division, in Santa Monica, California, and in Washington, D.C.

In 1967 he joined the staff of the Assistant Secretary of Defense for Systems Analysis as an operations research analyst and then served as Director of the Strategic Defensive Division until July 1972. He also served as an adviser to the Strategic Arms Limitation Talks in Helsinki and Vienna.

He re-entered private industry in 1972 as a senior manager with LTV Aerospace Corp in Dallas for a year until he was named Senior Management Associate in the Office of Management and Budget, Executive Office of the President, Washington, D.C.

Returning to the Department of Defense in February 1974, Mr. Aldridge served as Deputy Assistant Secretary of Defense for Strategic Programs until March 1976. He was then selected to be the Director of Planning and Evaluation, a principal adviser to the Secretary of Defense in the planning and program evaluation of US military forces and support structure.

He was named Vice President, National Policy and Strategic Systems Group for the Systems Planning Corp., Arlington, Virginia, in March 1977. Mr. Aldridge was responsible for the corporation's study and analysis activities in the areas of strategic and conventional forces and long-range strategic planning.

In August 1981 he became Under Secretary of the Air Force with additional responsibility for providing overall direction, guidance and supervision for Air

Force space programs, including launch and on-orbit operations and planning for future space capabilities. He assumed his present duties in June 1986.

His work in various assignments has earned him numerous awards. Among these are the Secretary of Defense Meritorious Civilian Service Award, Department of Defense Distinguished Civilian Service Award and Department of Defense Distinguished Public Service Award. He has been named a distinguished college of engineering alumnus from Texas A&M University and was the 1985 recipient of the American Astronautical Society Military Astronautics Award.

Mr. Aldridge is married to the former Joanne Knotts of Italy, Texas. They have four children.

GENERAL LARRY D. WELCH
CHIEF OF STAFF OF THE AIR FORCE

General Larry D. Welch is Chief of Staff of the US Air Force, Washington, D.C. As Chief, he serves as the senior uniformed Air Force officer responsible for the organization, training and equipage of a combined Active, Guard, Reserve and civilian force of nearly 1 million people serving at approximately 3000 locations in the United States and overseas. As a member of the Joint Chiefs of Staff, he and the other Service Chiefs function as the principal military advisers to the Secretary of Defense, National Security Council and the President.

General Welch was born June 9, 1934, in Guymon, Oklahoma, and graduated from Liberal (Kansas) High School in 1952. He received a bachelor of arts degree in business administration from the University of Maryland and a master of science degree in international relations from George Washington University, Washington, D.C. The general completed the Armed Forces Staff College at Norfolk, Virginia in 1967 and the National War College at Fort Lesley J. McNair, Washington, D.C. in 1972.

He enlisted in the Kansas National Guard in October 1951, serving with the 16th Armored Field Artillery until he enlisted in the US Air Force. In November 1953 he entered the aviation cadet program and received his pilot wings and commission as a second lieutenant. He served initially as a flight instructor until his assignment in July 1958 to Headquarters Air Training Command, Randolph Air Force Base, Texas.

General Welch then served in tactical fighter units in Europe, the continental United States and Alaska before transferring to the Republic of Vietnam where he flew combat missions in F-4Cs over North and South Vietnam and Laos.

After completing the Armed Forces Staff College in July 1967, he was assigned to Headquarters US Air Force, Washington, D.C., under the Assistant Chief of Staff for Studies and Analysis. Upon graduation from the National War College in July 1972, he was assigned to Tactical Air Command, where he served as Wing Deputy Commander for Operations, Vice Commander and Wing Commander.

In August 1977 he transferred to Headquarters Tactical Air Command where he served as Inspector General, Deputy Chief of Staff for Plans and Deputy Chief of Staff for Operations. In June 1981 he became Commander of the 9th Air Force and Air Force component commander for the Rapid Deployment Joint Task Force. In November 1982 he was assigned as Deputy Chief of Staff for Programs and Resources at Air Force headquarters and became Vice Chief of Staff of the US Air Force in July 1984. From August 1985 to June 1986, he served as Commander in Chief, Strategic Air Command, and Director, Joint Strategic Target Planning Staff, Offutt Air Force Base, Nebraska. He assumed his present duties in July 1986.

The general is a command pilot with more than 6300 flying hours. His military decorations and awards include the Defense Distinguished Service Medal, Distinguished Service Medal with one oak leaf cluster, Legion of Merit with one oak leaf cluster, Distinguished Flying Cross, Meritorious Service Medal, Air Medal with six oak leaf clusters, Air Force Commendation Medal with two oak leaf clusters, Joint Meritorious Unit Award and Air Force Outstanding Unit Award with "V" device and two oak leaf clusters.

He was promoted to general August 1, 1984, with same date of rank.

General Welch is married to the former Eunice Ellis of Liberal, Kansas. They have three sons, Brian, Stewart and Paul, and one daughter, Leslie.

EXECUTIVE SUMMARY

Preserving peace, freedom, and independence is America's most fundamental national security objective. To meet this objective, the Air Force has prudently balanced forces and capabilities to deter aggression across the spectrum of conflict. Over the past six years, our program to redress serious shortfalls in force structure, weaponry, readiness and sustainability has been successful. Maintaining this momentum is essential to meeting continuing threats to national security. The FY 88 Air Force budget request will continue to improve these forces and capabilities.

Progress over the past six years includes significant improvements in virtually every mission area. Strategic modernization, including deployment of cruise missiles, increased Minuteman III accuracy, upgraded B-52 avionics, and initial operational capability of both the B-1B and the Peacekeeper missile, has greatly improved our capacity to deter the threat.

The combat capability of tactical air forces has been significantly enhanced. Pilots flying today's airplanes in the air-to-air role with improved missiles, spares and support are 50 percent more effective against today's threat than were their 1980 counterparts against the 1980 threat. Updated airborne warning and control systems can handle three times as many targets as earlier versions. Aircrews in air-to-ground combat can destroy almost twice the number of targets as in 1980. Added capacity, modifications and spares have improved airlift, and we can transport the equivalent of two additional light infantry divisions to Europe in the first ten days of a war.

Congress and the American people have supported improvements, but the current fiscal climate could lead to harmful reductions or even the elimination of programs essential to deterrence. The Soviet Union continues to develop military capabilities far greater than those needed for their own defense. Rapid production of advanced Soviet weapons, expanding global reach of Soviet forces and growing Soviet influence abroad pose major challenges for the US today and in the future.

US military strategy to cope with these threats rests on deterrence. Deterrence is assured when sufficient military capability exists to ensure an adversary no potential gain from an aggressive action against the US, our allies or friends.

A balanced Air Force program ensures that we, in conjunction with our sister Services, build and maintain the nuclear and conventional capability to respond to the spectrum of threats. The FY 88 Air Force budget prudently balances allocations within all mission areas to build, operate and sustain today's forces, while investing in future capability to meet the changing threat.

The effectiveness of our forces depends on getting the most from our resources, and people are our most critical resource. Accomplishing the Air Force mission depends on highly motivated and well-trained people to support our mission priorities. These priorities are to modernize strategic forces, improve readiness and sustainability of general purpose forces, increase airlift capability, modernize and expand tactical forces, and improve our ability to operate efficiently in space.

AIR FORCE PEOPLE

Today more than one million Active, Reserve and civilian Air Force men and women serve to maintain a strong deterrent and a secure nation. These members of the Air Force team are highly motivated, better educated, better trained and more productive than any previous time in our 40 year history. They are also staying with us longer. Quality Air Force people are the foundation of our warfighting capability. We receive an unquestionably high return from our investment in people.

Air Force excellence in the future depends on how well we recruit and retain quality people today. The officer or airman now entering the Air Force will have to acquire the skills to take the Air Force into the 21st century. Despite the increasingly difficult recruiting market, our quality standards have remained high. Addressing our people programs in terms of mission accomplishment and professionalism has led to high motivation, high retention and high productivity. A professional environment, adequate compensation and family support are essential to maintain the quality force needed for readiness--today and tomorrow.

Improved economic conditions and an expanded civilian job market result in increased competition for skilled people. The attractions of civilian airline expansion and employment opportunities in electronics, communications and computers, contrasted to the special demands of military life, make retention a continuing challenge. We must continue to focus our attention on our people and keep them on the Air Force team.

The Air Force and the nation cannot afford to return to the personnel crisis of the late 1970s when pay lagged far behind the civilian sector, benefits were eroding, and many of our people were leaving for better opportunities. Today, military compensation lags behind the private sector by 9.4 percent. The comparability gap reported for our civilian workforce last year was almost 24 percent. This is a critical issue that must be addressed now.

The lack of adequate permanent change of station reimbursements is also a critical personnel issue. For every $3 our people spend on a PCS move, they are reimbursed only $1. The Air Force has reduced overall PCS costs by decreasing the frequency of moves and increasing average time on station to nearly 50 months. Several recent initiatives have reduced operational moves, but when Air Force people must move, we must adequately reimburse them.

In keeping with efforts to curb the cost of defense, the Air Force will begin reducing military strength over the next two years by more than 6000 positions. While military manpower will be reduced, civilian manpower will grow, with an increase of 2800 over the next two years. Although the Active force will decrease by about one percent over the next five years, the Air Reserve Forces are programmed to grow almost six percent by FY 92, a direct result of our effort to move missions and activities to the Air Reserve Forces when it makes economic and operational sense. All components of the Air Force organize, train and equip as a team, and the Air Force aggressively supports the Total Force policy while maintaining a prudent balance to meet peacetime and contingency taskings.

Management initiatives and a tight rein on manpower requirements are paying dividends, but our ability to use limited resources effectively is constrained by arbitrary ceilings. The European troop strength ceiling is the most significant impediment to fielding USAF forces in response to the Warsaw Pact threat. At the same time, non-programmatic reductions in officer strength adversely affect the proper mix of manpower resources. Air Force manpower requirements are established to ensure the right people with the right skills are available to do the job. Arbitrary manpower constraints degrade mission accomplishment in the support base (supply, logistics, R&D) and reduce our qualitative edge in the operation, maintenance and support of quality equipment.

The implementation of the provisions of the Goldwater-Nichols Reorganization Act of 1986 are well underway, and many of the objectives have already been achieved in the joint arena and within Air Force headquarters. The intent of Congress is clearly to increase the authority of the Chairman of the JCS and the unified commanders. The Chairman has reorganized the Joint Staff for better net assessment, preparation of fiscally constrained strategic plans and increased emphasis on joint doctrine, tactics and exercises.

The Air Force has been a leader in providing quality officers for joint duty. We are implementing the joint specialty and improving our management of officers serving in joint assignments. Some of the technical aspects of the law are potentially troublesome, for example, mandatory tour lengths for all joint duty assignments. The Air Force will work with other Services, the JCS and OSD to identify those aspects requiring further legislative action.

In Air Force Headquarters, we will consolidate some functions to increase effectiveness and efficiency. Some functions specified by the law are already consolidated in the Air Force. Others, such as acquisition and comptroller, require reorganization in the Air Staff and Secretariat. This realignment will help us achieve a mandated manpower reduction in headquarters. Over the next two years we will reduce manpower in the Air Staff and Secretariat by delegating more authority to field commanders; however, the same law also levies a 10 percent reduction over the next two years in field headquarters' staffs.

STRATEGIC FORCES

Of all the threats to our national security, none is so potentially devastating as that of nuclear war. Therefore, the strategy and forces necessary to deter nuclear conflict will remain preeminent in our military structure. Restraint and negotiation characterized our efforts to reduce the threat of nuclear war during the 1970s. However, the Soviet Union focused on improving the quality and quantity of their strategic forces in a destabilizing buildup. The Strategic Modernization Program initiated in 1981 has begun to restore balance to the strategic forces. Our commitment to strategic modernization remains strong and sends a message of strong national resolve to the Soviets.

In 1983 the Scowcroft Commission reaffirmed the requirement for the modernization of land-based ICBMs and manned bombers. Since then, we have made significant progress improving ICBM capabilities. The Congress approved deployment of 50 Peacekeeper missiles in existing Minuteman silos and funded a comprehensive evaluation of additional deployment options for the second 50 Peacekeepers.

Peacekeeper is essential as the foundation for an affordable and credible deterrent force, adding prompt, highly accurate weapons to our strategic arsenal in the near term and enduring capability for the long term. In December 1986 the President selected the rail-garrison basing option for development as the next basing mode for the continued deployment of Peacekeeper missiles. The Small ICBM (SICBM) completes our strategic ICBM modernization program and contributes to deterrence and stability by increasing the survivability of the land-based missile leg of the Triad. The SICBM, compatible with survivable road mobile basing modes, has been approved for full-scale development in a single warhead, 37,000-pound configuration, transported on hardened mobile launchers.

Modernization of the manned bomber, the most flexible leg of the strategic Triad, is also proceeding well. The manned bomber's ability to hold at risk a wide variety of Soviet capabilities is vital to deterrence. In the near term, the B-1Bs will assume the penetration role from the oldest B-52s. Concurrently, research and development continues on the new, long-range, low observable, advanced technology bomber that will provide a viable penetrating capability well into the next century.

Two systems add to the essential elements of effectiveness and flexibility in the manned bomber force to counter continuing improvement in Soviet air defenses. The advanced cruise missile, incorporating low-observable technology, will avoid detection while penetrating Soviet defenses, and the aging SRAM-A will be replaced by the SRAM II.

Modernizing continental air defense forces and upgrading ballistic missile and atmospheric warning systems improve our strategic defense. Continued development and testing of an effective antisatellite system is necessary to counter the Soviet's existing capability to hold our vital space assets at risk. An ability to respond in kind is a prudent and necessary deterrent.

Upgrading command, control and communications (C^3) systems is one of our highest priorities in the strategic force modernization program. All strategic offensive and defensive programs are being linked by more survivable and enduring C^3 systems. We are improving our ability to alert and activate the nuclear retaliatory forces by continued development of the Ground Wave Emergency Network and the Milstar satellite system, as well as modernization of the command centers they serve.

We are also pursuing, in concert with the Strategic Defense Initiative Organization, research efforts that could provide a comprehensive strategic defense. Continued emphasis on the Strategic Modernization Program and on the development of defense technologies is key to equitable and verifiable arms control initiatives that seek to reduce nuclear arms, ensure a capable and credible deterrent, maintain security and promote stability.

THEATER FORCES

Highly capable, ready and sustainable conventional forces are an important element of US deterrent strategy. The Soviet Union continues to expand conventional forces, outproducing the US in every category of weaponry and gaining on our qualitative edge in many areas. In this regard, three US programs are particularly worthy of special attention owing to their contribution to conventional deterrence--the Advanced Medium Range Air-to-Air Missile (AMRAAM), the Low Altitude Navigation and Targeting Infrared System for Night (LANTIRN) and the Advanced Tactical Fighter (ATF). Continued procurement of F-15E and F-16C/D aircraft is also vital to modernize and expand our existing tactical air forces.

AMRAAM provides the capability to attack multiple targets during a single intercept in an electronic countermeasures environment. It provides launch and maneuver capability, giving our fighters the combat leverage and improved survivability needed to win air battles when outnumbered. AMRAAM will double the effectiveness of the F-15 at about four percent of the aircraft cost and will increase F-16 air-to-air combat effectiveness six times. For air-to-surface missions, near-term programs provide the much needed ability to attack targets at night and in poor weather to deny Soviet objectives and support the Airland Battle. LANTIRN provides a capability to locate and attack a variety of ground targets around the clock, eliminating an enemy's night sanctuary. The ATF will provide air superiority over current and projected enemy fighters. Supersonic cruise and maneuver, low-observable technology and advanced modular avionics will result in a lethal, survivable ATF that will provide the air cover essential to tactical air support of the Airland Battle.

In Europe, the Ground Launched Cruise Missile (GLCM) continues to bolster NATO deterrence of Soviet mobile systems. GLCM installations are operational in the United Kingdom, Italy, Belgium and West Germany, with the two final installations under construction in the Netherlands and the United Kingdom. These weapons are a major component of NATO's theater intermediate nuclear force.

FORCE PROJECTION

To defend interests worldwide, the US must be able to deploy combat forces rapidly where they are needed. No matter how good our equipment or how realistic our training, our combat forces can only be an effective deterrent if they get where they are needed in time.

Aircraft modifications, increased stocks of spares, and delivery of C-5Bs and KC-10s have increased airlift capability by almost 25 percent. Our FY 87 funding completes the buy of 50 C-5Bs, 60 KC-10s and the cargo-convertible features of the Civil Reserve Air Fleet. By the end of the decade, we will have nearly doubled the strategic airlift capability we had in 1980. Despite this improvement, we will remain significantly below our needed airlift capability.

Requested FY 88 funding continues C-17 development and procures the first two aircraft. The C-17 will modernize the strategic airlift force and provide additional theater capability to complement the C-130, while saving approximately $16 billion and 15,000 people over other airlift alternatives. For the first time, we will field a strategic airlift aircraft with the ability to deliver the full range of Army equipment directly where needed, even into small, austere airfields inaccessible to our current long-range airlift force.

We must also continue to increase our air refueling capability. Air refueling requirements are growing for all strategic and general purpose forces. New engines and additional improvements to the KC-135 provide a 50 percent increase in capability at a fraction of the cost of a new aircraft.

Working closely with OSD and the other Services, Air Force elements of the

Special Operations Force (SOF) have been structured to meet theater commanders' requirements. SOF enhancements include additional AC-130s and MC-130s, modification of H-53s to a PAVE LOW III configuration and development of the CV-22. We will continue to modernize and expand SOF capability across the spectrum of conflict.

We must also deal with conflicts occurring below the threshold of theater warfare, such as regional conflict, insurgency and terrorism. Low-Intensity Conflict (LIC) is a broad term used to characterize conflict not involving direct confrontation between the superpowers. The Center for Low-Intensity Conflict, established with the Army at Langley Air Force Base, will increase understanding of this challenge. We are also developing an aircraft that will operate in a restrictive airfield environment common to LIC.

READINESS, SUSTAINABILITY AND INSTALLATIONS

The Air Force investment in force structure and modern weapon production can only be translated into a warfighting capability with adequate attention to readiness and sustainability. Modern, ready forces form the foundation of our capability to engage an enemy effectively at the onset of combat. Soviet perception that the US has the capability to respond effectively is essential to deterrence.

Our success in combat is dependent on a balance of sufficient force structure, modern equipment, well-trained personnel, effective repair facilities, sufficient spare parts, appropriate munitions and adequate fuel stocks. Our readiness goal is to provide the resources for fielded forces to perform their missions. Sustainable forces must have the staying power to fight through and beyond an initial period of combat. They depend on the nation's ability to replace resources consumed in battle.

Building and maintaining readiness and sustainability is a continuing process, requiring a prudent balance among spending areas to achieve realistic goals. The FY 88 Air Force budget request places a high priority on improving the combat readiness as well as the staying power of our forces. Although the pace will be slowed, our FY 88 funding request will enable us to increase spare parts stocks and equipment inventories for mobility and tactical forces, improve the inventory of modern munitions and train more effectively.

The condition of Air Force installations also directly affects combat capability. Runways, taxiways, aircraft shelters, missile silos, launch control centers and maintenance buildings must be ready to function during hostilities. Structures, such as medical facilities, military family housing, airmen dormitories, dining halls and community/recreational facilities, provide for our people's basic needs, contribute to their morale, welfare and productivity and help the Air Force retain quality people. The Military Construction Program (MCP) funds in this year's Air Force budget have been carefully designed to support the mission requirements and readiness posture underlying the strategy, providing quality facilities to enhance productivity and to retain our professional force.

SPACE AND TECHNOLOGY

Across all mission areas, space systems are an integral part of the US military force structure. Since 1958, the US has relied increasingly on space-based systems to provide support to all Services in such vital areas as communications, weather, surveillance and warning, and navigation. The Air Force is responsible for organizing, training and equipping forces to use space to support our national security objectives. To ensure that the US continues to take advantage of the unique attributes space provides, the Air Force has developed a comprehensive long-term strategy.

The first element of our strategy is to develop and maintain assured access to space. The Challenger loss and mishaps to other launch vehicles last year highlighted the need for a more diverse approach to space transportation. The Air Force program is designed to ensure access to space regardless of single element failures in the space transportation infrastructure. Because of congressional support for our complementary expendable launch vehicle program, Titan IV, we are close to achieving that goal. Our initial launch capability is scheduled for October 1988.

Second, the Air Force is developing a long-term survivability enhancement program for space systems critical to national security. In addition, we are continuing development of enduring, integrated surveillance systems to provide the National Command Authorities with unambiguous warning of attack.

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BUDGET OVERVIEW

The United States' national security objectives are to preserve the peace, freedom and territorial integrity of the nation and to safeguard the values and institutions of our democratic system. After nearly four decades of participation on the national defense team, Air Force efforts to meet these objectives are more important than ever. Balanced forces, modernized capabilities and a qualitative edge are essential to deter aggression across the spectrum of conflict. We must maintain a sufficient military capability and the national resolve to use that capability, if we are to be successful. The price of deterrence is clearly warranted when compared to the cost of potential losses resulting from insufficient forces and inadequate capabilities.

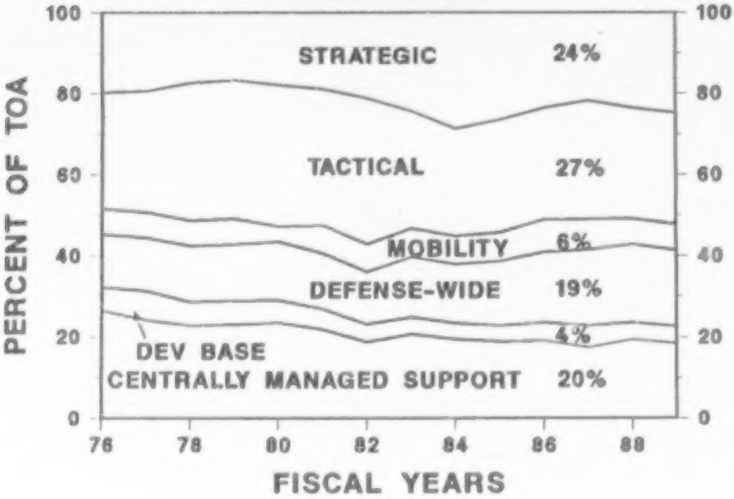
The Air Force budget request supports the requirement for a capable aerospace deterrent force. This balanced Air Force program ensures nuclear and conventional capabilities to successfully address the full range of threats to the security of the US, our allies and our friends.

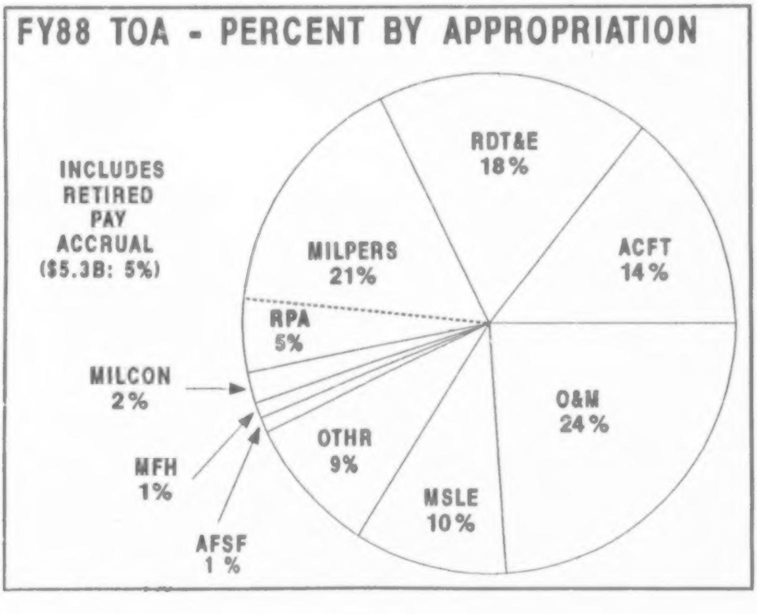
Our first objective is to counter the destabilizing Soviet nuclear force buildup by ensuring an adequate US nuclear deterrent. However, effective deterrence demands more than nuclear forces. The threats to our security are evolving, diverse and global, and we must deter aggression ranging from terrorism and insurgency to large-scale conventional or nuclear war.

Success depends on getting the most from the resources available to the Air Force. Getting the most requires well-trained and highly motivated people. Therefore, support for our people and their needs continues to be our first and overarching concern. Our mission priorities are:

- Modernize offensive and defensive strategic forces
- Improve readiness and sustainability of general purpose forces
- Improve airlift capability
- Modernize and expand tactical forces
- Improve our ability to operate efficiently and effectively in space

For FY 88, the Air Force requests $100 billion to provide the quality people, systems and support necessary to deter war and, if deterrence should fail, fight with ready, modernized forces capable of denying an enemy his objectives. We have made real progress in the last six years. This year's budget request allows us to build on that success, and provide the quality of life necessary to ensure the high productivity of our people. Our budget prudently balances expenditures among mission areas, operating and sustaining today's force, as well as investing in future capabilities. We struck a balance between readiness, significantly improved in the past few years, and modernizing our forces to meet the steadily increasing Soviet threat. In support of the national commitment to reduce deficit spending, we adjusted and, in some cases, cancelled programs to remain within funding guidelines. The accompanying charts illustrate the distribution of the requested FY 88 budget authority by major appropriation and mission area:


MISSION AREAS
(CONSTANT FY88$)


FY88 TOA - PERCENT BY APPROPRIATION

OUR PEOPLE

Our first and overriding concern is our people. Without top quality people, we can have the latest and finest equipment and be unable to accomplish our mission. Our recent success in recruiting and retention must continue. Today more than one million Air Force men and women, Active, Air National Guard, Air Force Reserve and civilians, serve to maintain the nation's security. Added to that are about one half million Air Force retirees, plus their families, all contributing to the Air Force team.

Air Force officers, airmen and civilians are the finest people our society can provide. Enhancements such as the January 1987 pay raise included in the FY 87 Authorization Act and the start of dental care for family members send a message that the nation is willing to underwrite readiness with required support for our people. But more must be done to build on the existing base of compensation and benefits if we are to remain competitive in attracting and retaining the quality people we need to take the Air Force into the 21st century.

MANPOWER

Military Manpower Adjustments. The Air Force is programmed to reduce 8150 military positions in FY 88 and grow by 1900 positions in FY 89, an overall decrease of 6250 positions from FY 87. Reductions stem from reduced requirements in tactical force structure, mobility forces, strategic missiles, and training areas, but result primarily from economic initiatives such as contract adjustments and increased host nation support. Increases are due to the addition of new weapons systems like the B-1B and the Ground-Launched Cruise Missile (GLCM), growth in special operations revitalization, additional F-15s and F-16s in FY 89, and medical improvements. The programmed end strengths are 598,700 military positions for FY 88 and 600,600 for FY 89.

Several programs designed to increase productivity have led to manpower savings. The Productivity Enhancing Capital Investment (PECI) Program funds equipment purchases to reduce labor and other costs. From FY 77 through FY 86, the PECI Program has offset nearly 4100 manpower requirements and produced an average return on investment of 13-to-1 in dollar savings and cost avoidance. The Functional Review Process (FRP) examines functional areas, streamlines the operation and then sets manpower standards. Since 1982 about 100 functional areas were reviewed, and over 1800 manpower authorizations reprogrammed into critical areas. Since 1979, the Air Force has reviewed almost 700 activities for possible conversion to contract. Nearly 9800 manpower authorizations were reduced as a result of conversions to contract or streamlining in-house operations. The Air Force has over 12,000 authorizations currently under consideration for contracting in over 450 activities.

Civilian Manpower Adjustments. The Air Force budget seeks an increase in civilian end strength of 1300 in FY 88 and 1500 in FY 89. Air Force civilian strength increases stem from two primary sources: (1) force structure changes and modernization that add civilian technicians in the Air Reserve Forces and (2) the transfer of Brooke Army Medical Center from the Army to the Air Force under the new Joint Medical Command in San Antonio, Texas. Our total programmed civilian end strength for FY 88 and FY 89 is 265,100 and 266,600 respectively.

The FY 87 Continuing Resolution cut the Active operations and maintenance account for civilian personnel by $80 million, based on savings to be achieved through management initiatives. Even though Congress continued to waive a civilian end strength ceiling for FY 87, a workyear cap for overseas civilians at the FY 86 level will negatively impact Air Force operations in Europe and the Pacific. For instance, in FY 87, the anticipated shortfall of about 500 civilian workyears will dictate substantial undermanning for overseas civilians. Even with undermanning, contracting, host-tenant support agreements and reprogramming actions, the civilian workyear shortfall coupled with continued overseas force structure growth, such as GLCM, will degrade the mission capability of our forces. The Air Force has programmed resources to meet requirements in FY 88 and FY 89.

Women in the Air Force. The Air Force continues to lead in providing opportunities for women to serve their country. The Air Force has the highest percentage of women ever: 12.1 percent as of September 30, 1986, compared to 11.6 percent the previous year. Women may serve in all officer career fields and all but four enlisted specialties (combat control, tactical air command and control, aerial gunner, and pararescue/recovery). In December 1986, the Air Force announced more than 1600 additional positions open to women, including aircrew positions on RC-135 and some EC-130 aircraft. Ninety-seven percent of our total positions are open to both men and women; about 3200 enlisted and 17,800 officer positions may be filled only by men.

The FY 85 DOD Authorization Act directed the Air Force to enlist 19 percent women in FY 87 and 22 percent in FY 88. A subsequent study concluded the Air Force should not recruit men and women in fixed percentages, but should modify accession procedures to allow the mix of men and women to fluctuate with changes in the recruiting marketplace. This change was effected in January 1986; nevertheless, women constituted 18.7 percent of accessions for FY 86. The DOD Authorization Act for FY 87 removed the 19-percent objective, but left standing the objective for FY 88, pending our performance using the new method.

European Troop Strength Ceilings. The military troop strength ceiling is a congressional strategy to encourage the NATO allies to increase their share of the total NATO defense burden. The ceiling for all Services is fixed at 326,414, although individual Service ceilings are determined by USCINCEUR. The FY 88 Air Force military strength is a result of NATO priorities such as GLCM manning. The European Troop Strength ceiling continues to be the single most important management obstacle to performance of the Air Force mission in Europe.

Such efforts to manage troop strength are complicated by conflicting guidance from the Senate Appropriations Committee on civilianization in Europe. In November 1985, the Committee praised the Army's successful efforts at civilianization in Europe and criticized the Air Force's lack of effort in this area. In September 1986, the Committee cited excessive DOD civilian growth in Europe. The FY 87 Omnibus Continuing Resolution followed suit by imposing an overseas civilian workyear cap, further hampering our ability to accommodate vital growth. By limiting civilian workyears, military growth can only be offset by contracting, programmatic changes and host nation support. These options are both time consuming and politically sensitive. Accordingly they are very difficult to implement.

The Air Force considers the European Troop Strength Ceiling an impediment to combat readiness in Europe. To remain within the Air Force portion of the ceiling, conventional forces must be withdrawn, or military positions civilianized or contracted. Congressional emphasis has been to increase the conventional capabilities in Europe to preclude early employment of nuclear forces. The effect of the ceiling has, in some cases, lowered the nuclear threshold by forcing reductions in conventional forces (OV-10s, RF-4s) to allow increases in needed tactical nuclear capabilities (GLCM).

Focusing on methods to influence allied contributions clouds the real issue that our force levels must be tied to countering a growing Soviet and Warsaw Pact conventional capability. Our NATO partners make force contributions that, in the aggregate, exceed our own in a number of key categories. With a combined population greater than ours, but a gross domestic product significantly less than ours, they maintain three and one-half million active duty military personnel compared to a little over two million for the US. In terms of ground combat strength (expressed in armored division equivalents) and tactical airpower (number of combat aircraft), US allies contribute roughly 60 percent of NATO's total combat capability. The Soviets do not have a manpower ceiling undermining their force modernization and expansion efforts.

DOD Reorganization. The Air Force is reviewing alternate organizational structures that will fully comply with the requirements of the Goldwater-Nichols DOD Reorganization Act of 1986. We have already programmed the necessary aggregate reduction to the Secretariat and the Air Staff, and will identify specific staff reductions as we complete required organizational changes. Necessary reductions to the remainder of our management headquarters activities are being reviewed and will be implemented by October 1, 1988.

Joint Military Medical Command, San Antonio TX. The Air Force supports the goal of the Secretary of Defense to establish a Joint Military Medical Command in San Antonio, Texas. This joint command will bring together the health services functions of Wilford Hall USAF Medical Center, Brooke Army Medical Center, and the Air Force clinics at Brooks, Kelly and Randolph Air Force Bases. The Air Force is executive agent to ensure delivery of health services and provision of graduate medical education through the five jointly staffed facilities of the joint medical command. The FY 88 budget reflects transfer of 12C0 civilians from the Army to the Air Force to implement this initiative. We are working to implement this new venture in a carefully phased manner, while maintaining high quality health services.

Officer Reduction. The FY 87 Authorization Act prescribed that the Secretary of Defense allocate a reduction of 1 percent in the total commissioned officer actual end strength from FY 86 levels for FY 87 and an additional 2 percent and 3 percent for FY 88 and FY 89 respectively. Since manpower requirements are based on mission demands, we must adjust missions to accommodate the artificially constrained resource levels. The Office of the Secretary of Defense, with Services participation, has initiated a comprehensive study of officer manpower requirements. This study will document our needs as well as analyze the impacts of reductions on readiness. The results of the study should be available in summer 1987.

Personnel Concept III. Personnel Concept III (PC-III) is a program of the Air Force Military Personnel Center to improve personnel service using improved information processing technologies. PC-III is an automated information system that will be installed at essentially every Air Force operating location throughout the world. Two years of system testing and evaluation will preceed a four-year installation period from FY 89 to FY 92. Full participation by the Air National Guard and the Air Force Reserve is planned; participation by Air Force Civilian Personnel Offices is under study. Funding for PC-III will eventually result in over 1500 manpower authorizations being realigned from Consolidated Base Personnel Offices to other high-priority needs.

RECRUITING AND RETENTION

Recruiting. Air Force capability in the 1990s and beyond depends on how well we recruit now. The officers and airmen who enter the Air Force today must be able to learn the skills necessary to serve the Air Force and the nation into the 21st century. Since FY 80, we have met our goals for enlisted accessions, and since FY 84, we have reached all our officer objectives. Our quality standards remain high despite the increasingly difficult recruiting market. For FY 86, 98.9 percent of Air Force enlisted recruits had a high school diploma, while the national average was just 73 percent. The average reading level of recruits was eleventh grade, compared to a national average of ninth grade. Similarly, 31.3 percent of selectees for Officer Training School had technical degrees. High-quality accessions have led to higher motivation, lower attrition and higher retention.

The news is not all good, however. We achieved our FY 86 accessions objective, but we did not meet reservation goals in 4 of the 12 months. There is a decreasing cohort of 18-year-olds in the US from which we must recruit the brightest. At the same time, unemployment is at the lowest level in many years. Air Force recruitment advertising, already the smallest program among the Services, suffered a 10 percent cut in FY 86, a $3.5 million cut in FY 87, and a $26 million cut in the FYDP, even though advertising costs rose 50 percent in the last four years.

The Air Force has no plans to use conscripts, but we have supported the need for registration. Meeting the sudden increased requirements of a major mobilization may require some Services to issue draft calls, and the current registration system will save time. Given the nature of our training, our requirement to retain significant numbers of critical enlistees and our longer enlistments, we do not need conscription to fill our peacetime requirements.

Retention. Retention of enlisted personnel has remained high over the past six fiscal years. Since FY 81, first-term airman reenlistment rates have been good, although the number of reenlistees has been declining since FY 83. The FY 86 numbers were below any of the preceding four years. Second-term enlistments increased in numbers for FY 86 but declined in percentage, a reflection of the large, second-term population created by the historically high first-term retention rate.

After reaching a critically low point in FY 79, officer retention climbed steadily to record levels in FY 83. Navigator and nonrated line retention have stabilized and remain at healthy levels. The pilot 6-11 year cumulative continuation rate (CCR) has declined from a high of 78 percent in FY 83 to 56 percent in FY 86. CCR is the percent of officers completing their initial service obligation who would be retained through their eleventh year if current retention trends prevail. The downward trend in pilot CCR is expected to continue as commercial airlines offer attractive salaries and a perceived better lifestyle.

Improved economic conditions and civilian job growth mean increased competition for our skilled airmen. Rapid airline expansion and maintenance personnel retirements have created job alternatives for flightline specialists. Employment opportunities in electronics and communications fields are increasing much faster than the average due to an increased demand for computers, communications equipment and electronic consumer goods. Job opportunities in service-oriented career fields are also on the rise. Well-trained Air Force people are extremely marketable.

The uncertainties of future budget actions also influence retention. In the past, job security was a powerful retention incentive. This significant advantage is being seriously challenged, even eroded, by perceptions of lost entitlements and/or changes in policies.

TRAINING

The importance of quality training cannot be overemphasized. As a recruiting incentive, the Air Force's reputation for first-class, technical training in highly marketable skills has been a historic attraction for America's brightest young men and women. Similarly, the opportunities for advanced training in an exciting environment contribute immeasurably to successful retention as well as to high morale. Additionally, effective training guarantees our superb safety record remains intact. Most importantly, top-quality training ensures our ability to perform the Air Force mission. All of these benefits combine to make training our highest yield investment.

Our training programs must be as dynamic as the rest of our Air Force operations in order to address changing requirements and developing technology within budget constraints.

Undergraduate Pilot Training. Undergraduate Pilot Training (UPT) is undergoing a substantial review. We envision a new system that better prepares student pilots at an earlier stage in their training for the particular weapon systems they will fly operationally. Specialized UPT, rather than mainlining all students through an identical course, will divide students at about the halfway mark. About 40 percent will enter a curriculum of training to prepare them to fly fighter-type aircraft. The other 60 percent will begin specialized training for tanker, transport and bomber aircraft.

An important issue is the desirability of the T-46 as a primary trainer. After careful consideration, the Air Force has decided to seek relief from provisions in FY 87 legislation that mandated a competitive fly-off to select a trainer. Since there are no funds in the FYDP to procure a new primary trainer, it would be imprudent to fund a program we cannot afford, particularly given other budget constraints. The Air Force believes that initiating a competition without the funding to procure the winning aircraft is unfair to all prospective bidders.

Undergraduate Space Training. Another training initiative this year was the start of Undergraduate Space Training at Lowry AFB, Colorado. The first class began in October 1986 and will be graduated in the spring. This course will provide space operations officers with basic familiarization with Air Force space systems. The current Air Force strength in space operations officers is about 160, but we are projecting a requirement of about 1800 over the coming years. This course is an important step to meet that need.

Trends in future training will be to meet increased electronic and mechanical requirements. We will also develop courses to help our airmen move from apprentice to specialist level, with greater use of simulators to improve the value of training courses. New technologies and greater use of existing technologies will make these courses more cost effective. These new technologies will also make training in the less technical skills, such as personnel and administration, become increasingly exportable. The availability of sophisticated computer hardware and software will allow us to provide formal courses of instruction in these areas which can be conducted at an airman's base of assignment, reducing training and PCS costs while better tailoring individual training.

TOTAL FORCE

The Air Force, including all Active, civilian and Air Reserve Forces components, organizes, trains and equips as a team. The Air Reserve Forces are programmed to grow almost five percent by FY 92. The Active force will decrease about one percent over the same period. This is a direct result of our effort to place as much of the force structure growth in the Air Reserve Forces as possible, while maintaining a prudent balance between the ability of the Air Reserve Forces to absorb that growth and the ability of the Active force to meet peacetime and contingency taskings.

For FY 88/89, the Air National Guard growth of 76 military technicians, 349 Active Guard/Reserve spaces, and 3922 drill positions supports additional force structure, modernization and readiness initiatives. Transfer of C-5 and C-130 aircraft, as well as modernization efforts involving F-15s and F-16s, are the major reasons for this increase. Additional manpower is necessary to support this new force structure and to improve readiness and sustainability in security, aircraft maintenance, food services and medical areas.

Air Force Reserve growth during FY 88/89 consists of 833 civilian technicians, and 5118 drill positions, primarily to support the transfer of C-5 and C-141 strategic airlift aircraft and modernization of the fighter force with F-16s. Sustainability is supported through increases in the medical and civil engineering functions and through additional individual mobilization augmentees.

There is no loss in wartime capability when a mission is transferred to the Air Reserve Forces, and Active force manpower authorizations can be reduced by transferring more missions to the Air Reserve Forces, but these should not be the determining factors in Active/Air Reserve Forces force structure decisions.

The main issue is to determine the mission areas appropriate to transfer and the amount of Air Reserve Forces participation. In making such a determination, there are some general precautions. First, the Air Reserve Forces benefit from the large pool of trained prior-service personnel. A smaller Active force would shrink the size of this prior-service pool and drive up the training costs for the Guard and Reserve. Second, Total Force equipment shortfalls plus Air Reserve Forces recruiting and demographic considerations limit expansion. Third, if the Total Force policy were to be driven by cost alone, we could become overly dependent on Reserve components. Transfer of missions to the Air Reserve Forces must be cost and force effective. If Congress directed conversion of a disproportionate amount of the Active force to the Air Reserve Forces, the Active force ability to meet contingencies without mobilization would be significantly decreased.

An important, often overlooked, segment of our Total Force is our active duty retirees. Active duty retirees are a valuable part of the Pretrained Individual Manpower resource who may be recalled to active duty in certain selected specialties by the Secretary of the Air Force in accordance with Title 10 US Code 688. There are about 250,000 eligible retirees (retired less than ten years, under age 60, not retired for medical reasons and physically qualified) who make up the active duty retiree resource.

MILITARY PERSONNEL INITIATIVES AND ISSUES

Pay comparability; permanent-change-of-station management and reimbursement; reenlistment bonuses; the New GI Bill; health issues; family support centers; Morale, Welfare, Recreation funding; and the Variable Housing Allowance offset are areas deserving attention and support this year. A perceived erosion of support is reflected in falling retention rates and is negatively affecting recruiting.

Military Pay. Since FY 82 when the Services received an average 14.2 percent pay increase, military pay has fallen 9.4 percent below that of private sector employees. The last five military pay increases have been capped, and the 3-percent raise effective January 1, 1987 compares to a 4.2-percent increase in private sector wage growth. While the purchasing power has not declined since FY 82, military people have not received the real increases in pay earned by private sector counterparts. Current retention and quality levels are good, but this significant pay raise differential matters to our members. Should this trend continue unabated, retention and recruiting problems are likely. If this occurs, we will lose a large measure of the experience base we have restored at great cost since the serious retention problems of the late 1970s.

PCS Management and Reimbursement. The lack of adequate permanent change of station (PCS) reimbursements is one of the most critical personnel issues facing the Air Force today. For every $3 our people spend on PCS moves, only $1 is reimbursed by the government. This negative compensation compounds the effect of the back-to-back, three-to-four percent pay caps of the past five years. To illustrate the magnitude of the problem, a 1985 Air Force survey showed that, depending on grade, the median unreimbursed (out-of-pocket) costs ranged from about $1500 to over $2700. Nearly 60 percent of Air Force members must borrow or withdraw from savings to meet their PCS expenses. The entitlements and initiatives in FY 86 helped alleviate some of the past financial hardships incurred by military members; however, the FY 87 Continuing Resolution denied payment of the temporary lodging expense gained in FY 86, except for E-1 through E-4 with dependents. We must restore the temporary lodging expense allowance for members above the grade of E-4 with dependents and for single junior enlisted members in FY 88.

The Air Force record on reducing PCS moves is excellent. Since 1974 the total number of moves per year has been reduced from 643,504 to 287,780 (FY 86). The average time on station for 1986 will be 49.5 months, compared to 23.7 months in 1974. Nevertheless, in 1986, budget actions, including Gramm-Rudman-Hollings, required drastic action to meet a $70 million shortfall. We were required to defer $70 million worth of moves from FY 86 to FY 87. We delayed overseas returnees and their replacements in long-tour areas for two months and delayed voluntary PCS moves and nonessential CONUS moves until after October 1986.

Further budget constraints required more permanent actions. We reinstated the Career Bachelor Program requiring single career members to serve the accompanied-tour length in long-tour areas. We modified provisions of the Base of Preference (BOP) program to allow only in-place program BOPs and those involving airmen retraining into critically-manned career fields. We began an extensive review of CONUS maximum tours requiring people to move. We are increasing the number of technical training graduates sent overseas. We are also sharply curtailing operational moves, reducing non-resident Air Force Institute of Technology and Education with Industry programs, requiring general officer initiation and approval for time-on-station waivers and curtailments, increasing minimum tour lengths in Alaska and Hawaii to 36 months, and raising retainability for CONUS PCS moves from one to two years.

Selective Reenlistment/Enlistment Bonuses. The Selective Reenlistment Bonus (SRB) is a monetary incentive to encourage reenlistments in critical Air Force specialty codes necessary to sustain the career force. The Enlistment Bonus (EB) is a monetary incentive to encourage recruits to enter and complete training in critical skills.

Some critical skills still have shortages and insufficient reenlistments and need the SRB to increase experience levels, encourage retraining and meet force requirements. SRB skills fall in the following categories: aircrew, intelligence, command and control, avionics, aircraft and missile maintenance, munitions and weapons maintenance, computer systems, civil engineering, security, weather, logistics plans, and medical and scientific technicians.

In FY 87, the Air Force will pay enlisted bonuses to only two difficult-to-recruit skills. One skill, crypto linguist, requires high mental standards because of the difficulty and length of the training courses. The second skill, explosive ordnance disposal (EOD), is very dangerous, and the demands of a tough training course result in high attrition rates. All EB recipients must enlist for six years, instead of the normal four-year enlistment; the additional two years of obligated service provides an excellent return on a small investment ($2000 for crypto linguists and $1000 for EOD specialists).

New GI Bill. The New GI Bill of October 1984 was enacted to assist the Services in efforts to recruit high-quality people. The program was structured as a three-year test, begun on July 1, 1985.

The Air Force supports continuation of the program. Under the prior Veterans Educational Assistance Program (VEAP) the Air Force experienced only an overall 6-percent participation rate. Under the new provision, the Air Force has had a steady participation rate of about 40 percent, with the majority of the participants in the upper Mental Categories I and II.

Acquired Immune Deficiency Syndrome Testing. Acquired Immune Deficiency Syndrome (AIDS) is a high-priority concern to the military community. FY 87 appropriations provide funds for AIDS testing and treatment. The military requires members to be capable of performing their duties with no extraordinary medical needs and withstanding the rigors of military life. AIDS testing of all new accessions to the Air Force began October 15, 1985.

In June 1986, the Air Force prohibited future overseas assignment/deployment of Air Force personnel identified as Human Immunodeficiency Virus (HIV) antibody positive and required those currently overseas who test positive to be returned to the CONUS. In September 1986, the Air Force Surgeon General directed that HTLV-III testing for the next six months be focused on people currently overseas and those being assigned overseas. As a result, Air Force-wide contract testing will be postponed until the overseas testing is completed.

Health Issues. The Air Force supports the CHAMPUS Reform Initiative to improve accessibility and preserve beneficiary choice of primary care to military dependents and retirees and their dependents. We also support full funding of the Dental Insurance Program for FY 88, a necessary plan to keep pace with benefits offered in industry. In addition, the Air Force contends that a supplemental catastrophic coverage insurance policy for purchase, at no cost to the government, would be in the best interest of our beneficiaries. The integrity of the current military health care system should remain intact to ensure all types of health care and maintain wartime readiness.

Family Support Centers. More than 60 percent of Air Force members have family responsibilities, and the Air Force is responding to local family issues, concerns and problems that impair productivity, morale and retention. Through the 64 Family Support Centers now operating at Air Force installations around the world, we are providing PCS relocation support, support during duty separations, spouse employment consultation, support during crises, financial management assistance, family development education and assistance for those with special needs, such as classes in English as a second language. We have a total of 123 centers programmed through FY 91. Continued strong support for Family Support Centers is crucial to the well being of our Air Force members.

Appropriated Fund Support to MWR. Public Law 99-500 reduces appropriated fund (APF) support to Morale, Welfare and Recreation (MWR) activities DOD-wide and directs DOD to suspend the use of APF in support of certain revenue-generating activities in large metropolitan areas in the United States. As worded, this will have a devastating effect on bases near metropolitan areas where APF support could be reduced by 50-75 percent. The cost of living tends to be higher in metropolitan areas, and the action will result in inequitable treatment to Air Force members. As worded, the CONUS sustaining base for approximately 400 APF managerial personnel providing essential command and control in these activities will be eliminated, thus creating a management void impairing the ability to generate the necessary nonappropriated funds (NAF) to accommodate APF reduction.

An Air Force Chief of Staff-sponsored task group has been formed and is conducting a comprehensive study of MWR in response to the congressional action. They will attempt to define program requirements, funding policies and procedures through which an adequate MWR program can be maintained.

Variable Housing Allowance (VHA) Offset. VHA was implemented on October 1, 1980 and was initially designed to pay each member the difference between the average housing cost for each grade/location and 115 percent of the basic allowance for quarters (BAQ). There were several subsequent changes to the computation of VHA before the FY 85 Defense Authorization Act restructured the program to establish an out-of-pocket absorption factor of 15 percent of national median housing costs for each pay grade. Increases in BAQ in FY 85 and 86 did not keep pace with increases in housing costs, and FY 87 VHA rates are frozen to FY 86 levels. A Service member's cost absorption is now as high as 18.9 percent of housing costs.

Furthermore, in March 1986 the VHA program was modified requiring a Service member to forfeit half the difference between housing costs and the sum of BAQ and VHA for the member's pay grade and area. This offset penalizes members who made substantial down payments on homes to obtain lower monthly mortgage payments, as well as those who bought or rented in outlying suburbs and traded longer commuting distances and time for affordable housing. The Air Force supports full VHA entitlement and opposes any changes which would further restrict VHA. The offset had its most severe impact on junior members who can least afford any reduction in housing allowances. For example, E-5s with an offset effectively lost the entire FY 86 three-percent pay raise. Service members are concerned about the erosion of benefits and particularly the inconsistency of pay and allowances from year to year. Demoralizing financial hardships will likely cause retention to suffer. Accordingly, the Air Force supports repeal of the VHA offset provision and opposes any changes which would further restrict VHA payments or annual VHA rate increases.

CIVILIAN EMPLOYEE ISSUES

Civilian Air Force employees provide invaluable depth to our Total Force through several means: they represent a training cadre for Service members; they work side by side with officers and NCOs, sharing an experience base; and they offer continuity. As with our Service members, though, we are concerned about retention. The same factors luring our highly skilled airmen into the private sector affect our civilian force. To ensure work force stability, the issues of federal pay, benefits and retirement need long-term solutions.

Alternative Personnel Systems. Withheld comparability increases since 1978 created staffing problems in some occupations and locations where the federal government faces a fully competitive labor market. Two recent Packard Commission studies identified federal pay and the rigidity of the General Schedule as impairments to improved management and operations. A Navy experiment with an alternative personnel management system at two California labs was considered highly successful in lowering attrition and providing more flexible personnel management. These factors spurred numerous legislative proposals in the 99th Congress for changes or alternatives to the current General Schedule system. The Air Force supports the administration's proposal, "The Civil Service Simplification Act," which provides for expanding the Navy's successful system improvements in a controlled, measured and budget-neutral manner throughout the federal government.

Civilian Ceilings. The FY 87 DOD Continuing Resolution imposes a ceiling on overseas civilian workyears in FY 87 at the FY 86 actual level, requires reporting during the year and directs submission of a monthly civilian employment plan with our FY 88 budget. Ceilings and reporting requirements such as these inhibit effective management since they focus on accounting systems rather than the economies of rational manpower management.

MILITARY RETIREE CONCERNS

There are more than a half million Air Force retirees. As previously stated, a quarter million could be recalled to active duty under the Secretary of the Air Force approval authority and must be considered in any discussion of the Total Force. Retiree volunteers are an important resource as well, assisting active duty members in Family Support Centers, medical and dental clinics and in areas of retention and pre-retirement processing. We must be responsive to this important segment of the Air Force.

The Air Force is very concerned with proposals for changes in medical care for retirees and their dependents. We want to make certain that efforts are directed toward improving problems in the current system. For example, CHAMPUS coverage ceases when retirees and dependents reach age 65 since they are then eligible for Medicare. Retirees find Medicare coverage inadequate and they are being denied the full coverage they earned through serving a career in the military. CHAMPUS coverage should supplement Medicare up to full benefit level to retirees over 65. Further, retirees should be included in the Dental Insurance Plan scheduled to begin for dependents of active duty members on October 1, 1987. The same applies to the new CHAMPUS provision authorizing an eye examination each year for family members of active duty members.

STRATEGIC FORCES

The underlying principle of national security policy is to deter war. The strategy and forces necessary to accomplish this have been and will remain preeminent in our military structure. Only with credible strategic forces will our adversaries be convinced they cannot achieve their aims through armed conflict.

During the 1970s, restraint and negotiations, rather than procurement and deployment, characterized US strategic efforts. The Soviets responded with rapid expansion of their strategic forces. Consequently, the strategic balance began to swing in their favor. The President's Strategic Modernization Program is redressing this imbalance. Concentrated efforts over the past few years have begun to reverse this trend, and strategic modernization continues by fielding improved forces today. But much remains to be accomplished.

SOVIET FORCE DEVELOPMENT

The Soviets have engaged in a determined, steady buildup of strategic nuclear weaponry over the last two decades, improving their capabilities across the spectrum of strategic warfare. These improvements lead to questions about Soviet intentions and provide a clear danger signal.

The Soviets understand the utility of a strong ICBM force, spending significant resources improving their capabilities. Today, the Soviet land-based force consists of approximately 1400 launchers carrying nearly 6400 warheads, over three times those of the US.

In spite of this significant advantage, Soviet modernization and expansion continues. Recent Peacekeeper deployments follow a long period of relative inactivity since the the Minuteman III program was completed in the mid 1970s. In the interim, the Soviet Union has deployed some 850 modern ICBMs. These missiles include the MIRVed SS-17, SS-18 and SS-19. These newer Soviet missiles enhance accuracy and payload potential and are maintained in silos hardened to better withstand attack. More recent Soviet deployments include over 70 road-mobile SS-25s. This combination of increased silo hardness and mobile systems reduce the effectiveness of US retaliation.

The Soviets continue to rely heavily on fixed silo-based missiles; however, new mobile ICBMs will soon be deployed in larger numbers. The SS-25s will be joined later this year by a Peacekeeper-sized rail-mobile SS-X-24.

Additionally, three new ICBMs are expected to enter flight testing in the next four years.

The Soviets are also modernizing their submarine-launched ballistic missiles (SLBMs), and their nuclear-powered ballistic missile submarines (SSBNs). They are replacing their entire MIRVed force of SLBMs, and are deploying new and improved SSBNs.

The Soviet SSBN force is nearly twice the size of the US force and is growing nearly four times faster. Over 60 modernized Soviet submarines are now armed with about 950 ballistic missiles carrying nearly 2600 warheads. The Soviets are deploying new DELTA IV and TYPHOON Class SSBNs, and are expected to deploy an advanced class in the early 1990s. The TYPHOON carries 20 new MIRVed SS-N-20 missiles, more accurate than previous Soviet SLBMs. The DELTA IV submarines carry the newly deployed SS-N-23, with increased range, more warheads and improved accuracy over the replaced SS-N-18. A replacement for the SS-N-20 will probably be tested later this year, along with another missile in the SS-N-23 class.

Two Soviet, sea-based, land-attack cruise missiles, the SS-NX-21 and SS-NX-24, are also approaching operational status. The SS-NX-21, with a maximum range of 1600 nautical miles, is small enough to be fired from a standard Soviet torpedo tube. Candidate launch platforms include the AKULA, SIERRA, VICTOR III and YANKEE-Class SSN attack submarines. The larger supersonic SS-NX-24 cruise missile will be flight-tested from a converted YANKEE-Class submarine and could be operational this year. The missiles have nuclear warheads, capable of destroying hardened targets.

The Soviets are producing three types of strategic bombers. A new variant of the BEAR bomber, the BEAR H, has been deployed carrying the first Soviet long-range cruise missile, the AS-15. Older BEAR aircraft are being retrofitted to carry a new air-to-surface missile, the AS-4. A new long-range bomber, the BLACKJACK A, is being flight tested and could be operational next year. This bomber, similar to but larger than the US B-1, will be capable of carrying diverse payloads including the AS-15 cruise missile. In addition, the Soviets continue to build about 30 BACKFIRE bombers a year. The BACKFIRE, described by the Soviets as a medium-range bomber, could be refitted with its original air refueling equipment to extend its capabilities against targets in the US. A refueling tanker under development, the MIDAS, could be used to support strategic operations.

Soviet capability improvements have not been limited to offensive forces. Their strategic defenses are extensive and consist of modernized surface-to-air missiles (SAMs), improved radar and fighter aircraft capability and an improved ballistic missile defense around Moscow.

Nearly 14,000 fixed and as many mobile SAMs pose a formidable threat to our air-breathing systems. By continuing deployment of the SA-10, the Soviets are improving this threat. The newest SAM in development, the mobile SA-X-12, may have the potential to intercept US strategic ballistic missiles.

In fighter aircraft, the Soviets continue to expand and modernize their existing force of nearly 3100 all-weather fighters by deploying the MiG-31/FOXHOUND A, the MiG 29/FULCRUM A and SU-27/FLANKER B. The MiG-29 and SU-27 are similar in size and mission to our F-16 and F-15 aircraft respectively. These newer interceptors have a look-down, shoot-down capability and carry a variety of new air-to-air missiles.

The upgrades to a two-tiered anti-ballistic missile (ABM) defense around Moscow, when complete, will bring the Soviets to the ABM Treaty limits of 100 launchers. Improvements include a long-range modified GALOSH missile designed to engage targets outside the atmosphere, plus a high-acceleration missile, the GAZELLE, designed to engage targets within the atmosphere. Most of the launchers will be in hardened silos. To control engagements, the Soviets are building a large, phased-array radar at Pushkino. This ABM system will reach full operational status in the late 1980s. The new radar under construction at Krasnoyarsk violates the ABM treaty and could provide a basis for a territorial ABM defense capability. If the Soviets continue to develop engagement and guidance radars as well as above-ground launchers for high-acceleration interceptors, they could use them for a rapidly deployable ABM network in violation of the ABM Treaty.

The Soviets are spending vast sums of money on strategic offensive and defensive forces. If the US Triad of forces is to remain a viable deterrent, continued US modernization is essential.

US STRATEGIC TRIAD

Our Triad of ICBMs, submarine-launched ballistic missiles and bombers provides a powerful deterrent to Soviet attack. A modernized Triad will complicate Soviet attack planning to the point that no Soviet planner could count on a successful attack. The three legs provide a mixed retaliatory force that is mutually reinforcing and compensating. The ICBM force provides high daily alert rates and accurate, quick response to hold time-urgent, hardened Soviet warfighting assets at risk. ICBMs also provide that important hedge against conventional and nuclear threats to the submarine force. The submarine force of SLBMs provides a mobile system with enduring survivability. The strategic bomber force provides the most versatile, flexible element, with its ability to be recalled, redirected and reconstituted. In concert, the diverse legs of the Triad make it virtually impossible for any adversary to successfully attack or neutralize our retaliatory capability. This Triad deters because it ensures our forces can launch credible retaliatory strikes. The Triad also provides a reliable hedge against a technological breakthrough directed toward any one leg.

The Triad concept remains viable despite Soviet advancements in technology. The Air Force is making major contributions to this viability by modernizing two components: land-based ICBMs and manned bombers. The President's Commission on Strategic Forces (Scowcroft Commission) reinforced the need for this modernization, stating, "to pursue successfully a policy of deterrence and verifiable, stabilizing arms control, we must have a strong and militarily effective nuclear deterrent. Consequently, our strategic forces must be modernized." Modernization ensures the future ability of the Triad to act as a credible deterrent, improving stability by increasing the certainty that aggression would result in decisive, effective retaliation.

ICBM MODERNIZATION

ICBMs, an essential element in the Triad, have unique features not found in bombers or SLBMs, including lower operating cost; high alert rates; rapid response capabilities; redundant, high-confidence command, control and communications; highly responsive retargeting flexibility; and excellent accuracy for prompt hard-target capability.

Missiles with improved capabilities are needed to bolster deterrence by reducing the Soviet advantage in ICBM force structure and ensuring that a strike against our land-based ballistic missiles would not prevent us from retaliating effectively. The US has embarked on an ICBM modernization program, deploying the Peacekeeper missile and developing a single-warhead Small ICBM deployed on Hard Mobile Launchers.

Peacekeeper. The Peacekeeper missile system is the foundation of our ICBM modernization program. This four-stage ICBM carries up to 10 independently targetable warheads of much greater accuracy than current systems. Peacekeeper is currently being deployed, and follow-on basing, rail garrison, is in development. As of January 1, 1987, 15 of the 20 planned research and development flight tests have been completed. In these tests, the system met or exceeded design goals, demonstrating outstanding accuracy and functional performance. The first four missiles were delivered to the Strategic Air Command in September, and an initial operational capability of ten missiles was attained in December 1986. Total program acquisition cost, adjusted for 50 missiles, is $14.5 billion (FY 82 dollars).

The Scowcroft Commission recommended deploying 100 Peacekeeper missiles in existing Minuteman silos to counter the Soviet ability to destroy hardened land-based targets, to demonstrate US national will and to provide incentives for arms control. Specifically, the report said, "deployment of MX is essential in order to remove the Soviet advantage in ICBM capability and to help deter the threat of conventional or limited nuclear attacks on the alliance." In March 1985, the President's "Report on Continuing the Acquisition of Peacekeeper (MX) Missile" concluded that the continued procurement of the 100 Peacekeepers was essential to national security and reaffirmed the Scowcroft Commission recommendations.

Congress approved deployment of 50 Peacekeeper missiles in existing Minuteman silos. Currently the first increment of missiles are replacing an equal number of Minuteman systems deployed near F.E. Warren AFB, Wyoming. Congress also directed that deployments of missiles beyond 50 would be subject to their approval of a more survivable basing mode. Funds were provided to investigate basing alternatives including: carry-hard; shallow tunnel; rail-garrison; ground mobile; hardened silos (enhanced, superhard, superhard with concealment); and deep-basing modes. On the basis of extensive studies, the President selected the rail-garrison mode for development. The Air Force is confident this mode will meet the survivability concerns of Congress as well as the security and deterrence needs of the US for today and well into the future.

Our FY 88 budget request includes funding to procure additional missiles, continue testing and evaluation, purchase spare parts for deployed assets, construct support facilities and develop the rail-garrison basing option.

Small ICBM. The SICBM was designed as part of a total ICBM modernization package recommended by the Scowcroft Commission. The SICBM supports long-term stability objectives by increasing the survivability of our land-based ICBM leg of the Triad. The SICBM's light weight, less than one-fifth that of the Peacekeeper, makes it compatible with the Hard Mobile Launcher selected by the President. This missile will also improve nuclear deterrence and stability by further confounding any Soviet attempts to attack and neutralize all parts of our strategic forces simultaneously without fear of a quick, effective counterattack. Because the Soviet risk to attack is increased, so, too, is stability and deterrence.

From 1983-1985, the Air Force completed concept definition and pre-full-scale development phases for the SICBM. During this period, concept evolution and validation of critical aspects of the program have been aggressively pursued. Hardness and mobility testing of various Hard Mobile Launcher concepts were evaluated using scale models and full-scale mobility test vehicles. Results of these two phases indicate that we can provide sufficient hardness without severely restricting mobility.

Based on the December 19, 1986 Presidential decision, the SICBM has entered full-scale development. First flight will occur in 1989, leading to an initial operational capability by December 1992. The FY 88 budget includes funds for continued R&D on a 37,000-pound SICBM Hard Mobile Launcher, development of prototype rocket motors and Hard Mobile Launcher fabrication.

Minuteman. The Minuteman force, the least expensive element of the Triad system to operate and support, requires increasing resources to ensure its continued reliability and effectiveness. Although over 25 years old, this system will remain a key element of the US strategic deterrent posture. Minuteman missiles continue to be effective against most targets and are critical resources in addressing the massive Soviet advantages in ICBMs. Accuracy, reliability and supportability improvements keep Minuteman an important element of the Triad.

To maintain and improve Minuteman capabilities, FY 88 funds will be used for continued modification and refurbishment of the force. These changes include: new C^3 systems to improve responsiveness; accuracy improvement programs; a penetration-aids upgrade; and improved reliability through repair of booster motors, missile guidance sets and ground facilities.

ICBM Technologies. The Air Force is exploring other areas of technology, such as maneuvering reentry vehicles (MaRVs) and penetration aids, to provide a hedge against the near-term unilateral deployment of Soviet ballistic missile defenses. These efforts are directed at enhancing the penetrability, survivability and performance of US ICBM RVs and are part of the Advanced Strategic Missile System (ASMS) Program.

FY 88 funds are directed toward advanced development of a penetration aid system for Minuteman, Peacekeeper and the SICBM. This R&D effort is aimed at countering ongoing upgrades to current Soviet ABM capabilities and acts as a hedge against possible Soviet abrogation of the ABM Treaty. The importance of US research efforts have increased in light of Soviet advances in ballistic missile defense and Soviet deployment of their upgraded ABM network around Moscow. Research supports a rapid, full-scale development and deployment program to ensure US reentry vehicles (RVs) can penetrate such an upgraded Soviet system.

The MaRV Program is another part of ASMS. The MaRV is an RV that can perform evasive maneuvers to elude defensive systems and attack designated targets with a high degree of accuracy. This penetration technique would be effective against current technology terminal defenses, such as those deployed around Moscow and which could be deployed in a potential Soviet nationwide ballistic missile defense system.

The ASMS Program will give the US an effective retaliatory capability in the face of potential Soviet ballistic missile defense efforts and help the Air Force maintain a strong ICBM deterrent.

BOMBER MODERNIZATION

The manned bomber is the most flexible element of the Triad. The capability to launch quickly from alert status and the ability to be recalled or redirected after launch provide unique deterrent characteristics not found in ICBMs or SLBMs. Additional attributes include the ability to make realtime damage assessments during an attack and be reconstituted for follow-on missions. The capabilities to carry a large number and variety of nuclear and conventional weapons, attack widely separated targets and engage alternate targets by using advanced sensors provide for measured response and flexibility. Because of increased Soviet emphasis on mobile ICBM delivery systems and command centers, the manned bomber's unique potential for locating and destroying such systems is essential for an effective deterrent.

A force of penetrating bombers, employing long-range cruise missiles, gravity bombs and short-range attack missiles, places extraordinary demands on Soviet war planning. This combination precludes the enemy planner from optimizing defensive forces against a single threat and requires massive allocation of resources to defense which could otherwise be allocated to offensive systems.

The Bomber Modernization Program is designed to counter existing and projected Soviet defense improvements. The B-1B is the near-term follow-on to the B-52 in the penetrating bomber role. The B-1B achieved the planned IOC and began to fulfill a SIOP alert commitment at Dyess AFB, TX on October 1, 1986. Full deployment of 100 aircraft is expected by 1988. In addition, the President directed the development of the Advanced Technology Bomber (ATB) for deployment in the 1990s to ensure a manned penetration capability well into the 21st century.

The B-1B and ATB are integral parts of the strategic modernization program. Each has an essential role in a time-phased effort to ensure bomber systems continue to place a wide range of Soviet targets at risk. Once the ATB enters the inventory, the B-1B will begin to assume a mixed role as a cruise-missile carrier and penetrator. In the 1990s, a combined force of B-52s with cruise missiles, B-1Bs and ATBs and will place maximum stress on Soviet air defenses and provide the US with a flexible and highly capable nuclear deterrent.

B-1B. The 1981 Defense Authorization Act directed the Secretary of Defense to pursue full-scale development of a multi-role bomber capable of performing both nuclear and conventional delivery missions. The B-1B aircraft was designed to meet this task. This aircraft's primary mission is nuclear, revitalizing the manned bomber leg of the Triad. A combination of high-speed, low-altitude tactics; electronic countermeasures; and low-radar cross section makes the B-1B an effective penetrator. As the aircraft matures, capabilities will improve, ensuring its viability well into the 1990s. The B-1B also has the range and payload capability to provide worldwide power projection in the conventional arena. As the ATB enters the bomber force, the B-1B will gradually assume a mixed role as cruise-missile carrier and penetrator.

The B-1B program remains within the certified $20.5 billion (FY 81 dollars) cost ceiling. However, program funding has been substantially reduced by Congress--nearly $1 billion (FY 81 dollars) below the certified cost ceiling last year. Some of these funds must be restored to complete work on the B-1B.

The FY 88 program funds additional development and demonstration of the aircraft's operational capability. Flight testing will focus on cruise missile and common strategic rotary-launcher integration, radar cross section measurement, electromagnetic interference compatibility and continued development of the defensive system. Maturation of the terrain-following radar, and flight control systems will continue.

Advanced Technology Bomber. Soviet technological developments in air defense systems present an ever increasing challenge for this nation's airpower. The ATB is a long-range strategic bomber, potentially able to negate the Soviets' heavy investment in surface-to-air (SAM) missiles and advancements in look-down/shoot-down interceptors. The ATB will incorporate extensive low-observable technology, making detection by enemy defenses extremely difficult. Consequently, this aircraft will have excellent capability against the full spectrum of strategic targets. The program also emphasizes reliability and maintainability initiatives to increase aircraft availability and reduce the cost of operation. The ATB program is on schedule, and when aircraft are delivered in the early 1990s, they will provide confidence that our manned bombers will be able to penetrate Soviet defenses well into the next century. The Air Force is convinced that the ATB will help preserve the military balance by adding a new dimension to strategic airpower.

B-52. The B-52 has been the backbone of the manned bomber component of strategic airpower for more than a quarter of a century and will play a significant role in our nuclear force structure as the B-1B and ATB enter the inventory. The B-52's conventional role continues to grow in importance because its long-range; rapid response; large, diversified payload; and extended loiter time provide a worldwide capability not found in any other weapon system.

The B-52 currently supports unified CINCs in nuclear and conventional roles. Evolving worldwide air defensive threats, however, require it to have standoff delivery capabilities when employing conventional weapons against land and sea targets. This provides flexibility to put high-value enemy targets at risk, regardless of the threat environment. The Air Force and Congress strongly support this concept. Sixty-one non-ALCM B-52Gs and 28 B-52Hs have been identified to participate in a full range of conventional operations. By the late-1980s the 61 non-ALCM B-52Gs will be dedicated primarily to this role.

Currently the B-52 supports the Navy in a standoff anti-ship role using the joint-procured Harpoon missile. Additionally, a Memorandum of Agreement between the Navy and the Air Force sets forth other mission areas for employment of the B-52 to include sea surveillance, reconnaissance and mine-laying operations.

Major modification emphasis to date has been to add the Offensive Avionics System (OAS) and Cruise Missile Integration (CMI) (external ALCM carriage) to the B-52G/Hs. The OAS digital avionics system replaced a bombing/navigation system of outdated technology that suffered from low reliability and high support costs. To further improve the aircraft, 98 B-52Gs and 34 B-52Hs have been modified with CMI. CMI completion is scheduled for FY 90.

Other system improvements budgeted for FY 88 include electronic countermeasures, a common strategic rotary launcher (CSRL), and an integrated conventional stores management system. The installation of ECM equipment on all B-52Hs, 54 non-ALCM B-52Gs and 60 ALCM B-52Gs will better counter enemy technological advances in the electronic combat arena.

The CSRL is a multi-purpose internal launcher for the B-52H, capable of carrying a variety of weapons. The capability for CSRL transfer to our newest bombers has been incorporated in the design for additional cost saving.

For increased conventional capability for the B-52, integrated conventional stores management system will enable non-ALCM B-52Gs to carry, program and launch modern conventional weapons. A necessary capability for most efficient support of Unified CINCs.

FB-111. The all weather, day/night capable FB-111A fleet, a key element of our strategic forces, is being integrated into the conventional role although the primary mission has been nuclear. Plans are to transfer these aircraft to the tactical forces in the early 1990s.

The FY 88 budget requests funds for several modifications on FB-111 aircraft, including the Avionics Modernization Program (AMP) and electronic countermeasure upgrades. The AMP is a reliability/maintainability upgrade to the aircraft's bomb navigation system. The modification will raise mean-time-between-failure of the overall system from 4 hours to approximately 20 hours and will ensure better system supportability and reliability through the 1990s. The ECM improvements will provide increased threat recognition and effective countermeasures to combat the new/modified Soviet threats. Both upgrades will improve the worldwide navigational and surgical strike capabilities of the FB-111.

AIR-TO-GROUND MISSILES

A manned bomber, employing a mix of cruise missiles and short-range attack missiles, provides our planners with maximum targeting flexibility and limits the Soviet ability to counter the unique attributes of each system. These systems are designed with different applications in mind, and each is essential to further improve strategic deterrence.

The SRAM II will improve short-range supersonic delivery, and Advanced Cruise Missile (ACM) improves long-range subsonic delivery. Both programs comply with congressional desires for standoff weapons. Each will tax enemy defensive systems differently and provide increased incentives for Soviet expenditures on defensive rather than offensive systems.

Short-Range Attack Missile II. The Short-Range Attack Missile II (SRAM II) is a replacement for the aging SRAM-A, currently deployed on our strategic bombers. The SRAM II addresses the current problems of declining SRAM inventories, reliability concerns of the aging rocket motors and the need to upgrade existing SRAM warheads with modern safety features. Additionally, it provides a rapid targeting flexibility, accuracy and performance improvements.

Unlike cruise missiles, the SRAM II remains with the penetrating aircraft until near the assigned target. This provides additional target acquisition time for the aircrew and is critical when attacking mobile defenses and other systems. Once the target position is determined, the missile's standoff capability provides for increased aircraft survivability by reducing the need to fly into heavily defended areas generally associated with high-priority targets. Additionally, the SRAM II's supersonic speed, low-radar cross section and multiple-delivery profile render it a formidable weapon to defend against. Because of the Soviets' current heavy investment in mobile systems, we need more manned bombers equipped with SRAM IIs.

The SRAM II program is structured to provide an up-to-date weapon based on more than a decade of operational experience with SRAM. By using existing technology, we can make significant performance improvements with low technical risk. Our acquisition strategy emphasizes competition and incorporates advances in low-observable technology, navigation systems, propulsion efficiency and system accuracy.

Flight tests are planned to begin in mid-FY 89, with an initial operational capability in FY 92. The FY 88 budget request for developmental funds will ensure this program continues at an efficient rate.

Air-Launched Cruise Missile/Advanced Cruise Missile. The cruise missile is an effective weapon for attacking preplanned, fixed, hardened, strategic targets. An accurate, survivable and long-range subsonic weapon, the cruise missile increases bomber targeting and routing flexibility, reducing aircraft exposure to air defense threats. B-52Gs equipped with 12 external air-launched cruise missiles (ALCMs) are now operational.

The ACM is a second-generation missile currently under development as a logical and timely update to our current force. Technological improvements in missile radar signature, range, accuracy and targeting flexibility will ensure long-term effectiveness. ACMs can be launched over a thousand miles from their fixed targets. Their low-observable technology design will make them extremely difficult to detect. Once launched, the delivery aircraft will be free to assume other roles. The combined effect will saturate Soviet defenses and multiply the effectiveness of the bomber strike force. A competitive source selection was concluded in 1983, and the full-scale development contract for the ACM has been awarded. Deployment is planned for the early 1990s.

STRATEGIC DEFENSE

Strategic defense must provide our National Command Authorities with the tactical warning/attack assessment capability required to posture forces for survival, limit damage from atmospheric attacks and respond appropriately to an attack on the United States.

The Soviet Union has pursued significant growth of modern, strategic offensive systems over the past few decades. In light of these improvements, the Air Force has reexamined strategic defensive needs and is building forces required to achieve a more stable deterrent. We are modernizing our continental air defense forces, advancing air defense technologies through our Air Defense Initiative (ADI) and pursuing an antisatellite space defense system within congressional guidelines. In consonance with the President's Strategic Defense Initiative, we are exploring new technologies that could provide a comprehensive strategic defense.

Atmospheric Defense

Atmospheric defense of North America has long been a cooperative Canadian-US effort, with surveillance and warning systems configured to control access to North American airspace. The North American Air Defense Master Plan (ADMP) continued this cooperation by comprehensively addressing our combined requirements and force structure for atmospheric tactical warning, attack assessment, damage-limiting response and airspace control. We consulted with our Canadian counterparts throughout the development of this plan and signed a Memorandum of Understanding for sharing cost and responsibility for various components of the plan. The ADMP recommends major strategic defense improvements in the atmospheric arena. The first improves our day-to-day warning and attack assessment capability by augmenting existing systems with Over-the-Horizon-Backscatter (OTH-B) radars and replacing the aging Distant Early Warning (DEW) line radars with the North Warning System (NWS), a system of state-of-the-art, ground-based, microwave radars. The second improves intercept capability, attack assessment and active defense by updating our air defense squadrons with modern interceptor aircraft.

Over-the-Horizon Backscatter. To extend coastal surveillance coverage beyond the limit of the Joint Surveillance System radar, we are building long-range Over-the-Horizon Backscatter (OTH-B) radars on the east and west coasts. Planned extension of the OTH-B includes a central US and an Alaskan OTH-B. These radars will cover all altitudes and give early warning of hostile intruders out to approximately 1800 miles. We are requesting funds in FY 88 for further development and procurement of the final OTH-B needed to complete the west coast system.

North Warning System. NWS is replacing the DEW line and provides improved radar surveillance at reduced operations and maintenance costs. The NWS will also provide credible, long-range, all-altitude coverage to complement OTH-B surveillance. The NWS mission is to provide reliable, timely, tactical warning of bomber or cruise-missile attack on North America. The operational system will consist of a total of 52 radar stations: 13 long-range, minimally attended radars and 39 short-range, unattended radars. The US is funding 60 percent of the acquisition cost, and the Canadians will fund the remaining 40 percent. FY 88 money will complete development of the short-range radar and initial operational testing, leading to production decision in late FY 88.

Air Defense Interceptor Modernization. Fighter interceptor aircraft assigned to atmospheric defense include F-15s, F-4s and F-106s. The responsibility for the mission is shared by Active and Air National Guard units, with the Guard now manning 12 of the 14 dedicated US air defense squadrons.

We are modernizing our interceptor force to counter the increasingly capable air-breathing threat to North America. This threat includes cruise missiles carried by Soviet strategic bombers and submarines as well as a new generation of long-range penetrating bombers. To combat these threats, improved long-range interceptors with a large-search volume radar and look-down/shoot-down capability are needed. Two Active units and one National Guard unit are equipped with the F-15, and the Air Force has chosen the F-16A fighter to replace retiring aircraft. Our modification of 270 existing F-16A aircraft will enhance our capabilities in this critical area.

Airborne Warning and Control Systems. The North American Air Defense Master Plan recommended additional procurement of the E-3 Airborne Warning and Control System (AWACS) to provide survivable command and control in wartime and a system capable of detecting long-range bombers at altitudes and distances unobtainable with land-based radar. AWACS patrols can provide limited radar coverage of northern airspace until DEW line radars are replaced by NWS, and OTH-B is on line to extend current Joint Surveillance System coastal coverage. In addition to extending radar coverage, AWACS provides the flexibility to deploy a survivable airborne surveillance and C^3 system anywhere within North America. We recognize a need for greater numbers of AWACS to fulfill our sizable operational commitments; however, the procurement cost precludes additional acquisition. To meet our requirements, we are asking for funds to modify the present system to keep it viable.

Canadian Contributions. Since 1957, Canada and the US have shared the burden of defending North America as joint members of the North American Aerospace Defense Command (NORAD). Although the greater force committment falls to the US military, Canada is modernizing its forces and increasing its participation. Most visible is the Canadian Air Force's CF-18 in the air defense role, a great improvement over the older CF-104 and CF-101. However, the biggest improvement is the Canadian commitment to pay 40 percent of the estimated $1.3 billion cost to overhaul the outmoded DEW line with the NWS. Other Canadian contributions include forward operating locations/dispersed operating bases for fighter and AWACS operations, AWACS and OTH-B manning, and communications/radar station support and manning.

Ballistic Missile Tactical Warning and Attack Assessment

Our current ballistic missile tactical warning and attack assessment is provided by space-based systems; three Ballistic Missile Early Warning System (BMEWS) sites; the Perimeter Acquisition Radar Characterization System radar; AN/FPS-85 radar; and four PAVE PAWS submarine-launched ballistic missile (SLBM) phased-array detection and warning radars. Information from these sensors is provided to the NCA via strategic communications systems and command centers throughout the continental United States.

Ballistic Missile Early Warning System. The BMEWS consists of radar warning systems in Alaska, Greenland and the United Kingdom. We have recently completed enhancements to the Greenland radar system and are currently upgrading the United Kingdom system. The initial operational capability for UK improvements is expected in FY 90. We are also evaluating the need to upgrade the Alaskan radar system.

PAVE PAWS. The deployment of the four-site PAVE PAWS SLBM detection and warning system is almost complete. The southeast site, Robins AFB, Georgia, began operations in November 1986, and the southwest site, near Goodfellow AFB, Texas, should be operational in May 1987. We are requesting funds in FY 88 to operate and maintain the existing systems and to initiate upgrades to the Robins AFB and Beale AFB sites to expand coverage and ultimately permit closure of the aging warning radar site at Eglin AFB, Florida.

Space Defense

Antisatellite Program. The US Antisatellite (ASAT) Program responds to the threat posed by the already operational Soviet system. Today, during a crisis or conflict, the US cannot respond in kind to a Soviet space attack against our satellites. This Soviet capability has raised the prospect of a Soviet military advantage in space. An operational US ASAT capability would deter threats to US and allied space systems by threatening operational Soviet reconnaissance and surveillance systems that provide information to Soviet combat forces.

ASAT testing is fully consistent with the rights and obligations of the United States under the 1972 Anti-Ballistic Missile Treaty. The Air Force supports US commitment to negotiate a mutual and verifiable agreement with the Soviet Union for the strictest possible limitations on antisatellite weapons, consistent with US national security interests. A moratorium on antisatellite weapons testing is not in our national interest at this time since it perpetuates the existing imbalances in capability. Testing against objects in space is critical to development of ASAT and is required before an operational system can be produced and deployed. No mention of an antisatellite moratorium was ever made by the Soviet Union until the US entered the testing phase of our own ASAT program. By that time, the Soviets had completed 20 tests and could consider their system operational. Failure to continue testing will reduce Soviet incentives to negotiate in good faith, provide them a sanctuary in space for their reconnaissance and targeting satellites, and keep us from realizing the total benefit of our ASAT expenditures to date.

The Air Force has conducted a reevaluation of our FY 87 development and testing activities based upon the language contained in the FY 87 Continuing Resolution prohibiting tests against an "object" in space without Presidential certification of a similar Soviet test. In FY 88, the Air Force will continue with development and testing of the current air-launched ASAT program. We plan to begin production in FY 88. To ensure that other promising technologies are being adequately evaluated, the Air Force has initiated a gas-laser development program in conjunction with the Strategic Defense Initiative Organization. We have also started on an improved altitude ASAT capability. Both of these new efforts are reflected in our FY 88 request.

Strategic Defense Initiative. The Strategic Defense Initiative (SDI) is a broad-based research program to demonstrate the feasibility of effective strategic defenses. The program also acts as a hedge against the unilateral deployment of advanced Soviet ballistic missile defenses. It taps the finest scientific minds in the US and other nations to investigate a range of defensive technologies, leading to an informed decision on comprehensive defensive options.

The Air Force will execute approximately one-third of the SDI program over the next few years. We receive funds and technical and programmatic guidance from the Strategic Defense Initiative Organization (SDIO), and develop and carry out plans. Our laboratories and two major product divisions (Electronic Systems Division and Space Division) will award contracts and manage programs on behalf of the SDIO. The Air Force is managing programs in directed energy, kinetic energy, surveillance and acquisition, battle management/C^3, and survivability and lethality.

Specific SDI programs in the Air Force are the Boost Phase Surveillance and Tracking System (BSTS), the Space Surveillance and Tracking System, (SSTS) the Space-Based Kinetic Kill Vehicle, the Ground-Based Laser and the SDI National Test Bed. By working closely with the SDIO, we meet SDI and Air Force objectives. The most critical near-term SDI programs for the Air Force are the BSTS and the SSTS. The BSTS would provide missile early warning and the SSTS would provide space surveillance, both critical Air Force mission areas. The Air Force will begin full-scale engineering development of BSTS in FY 89.

STRATEGIC COMMAND, CONTROL AND COMMUNICATIONS

Strategic deterrence depends on Command, Control and Communications (C^3) systems for the effective employment of forces supporting a wide range of military operations. C^3 systems link the National Command Authorities (NCA) to senior force commanders and command centers, and link our tactical warning and strategic defensive and retaliatory forces to command centers and to each other. In short, C^3 systems ensure that US national policy and defensive strategy are executed promptly and correctly.

US C^3 systems require speed, flexibility, reliability and survivability to ensure usefulness before, during and after a nuclear attack. They also must function in concert with our general purpose forces. Additionally, C^3 should provide high-confidence, unambiguous, timely, attack-warning and attack-assessment information to the NCA.

Modernization of C^3 systems has not kept pace with the Soviet offensive threat. Consequently, upgrading our capability is one of the highest priorities of the modernization program. Our objective is to make C^3 systems as robust as the forces they support. Systems like the Ground Wave Emergency Network and the Milstar satellite communication system will give us an electromagnetic-pulse (EMP) resistant way to alert and activate our nuclear retaliatory forces.

Ground Wave Emergency Network. The Ground Wave Emergency Network (GWEN) will provide secure, EMP-hardened communications to our land-based forces through a network of radio relay stations throughout the US. Each relay, similar in appearance to a small commercial AM radio station transmitter site, will link military command, control and warning centers, providing broadcast and data communications capability to our strategic forces.

Milstar. Milstar will furnish secure, jam-resistant satellite communications channels in voice and data format from attack sensors to the NCA and from the NCA to the strategic force of bombers, missile-launch control centers, submarines and airborne command posts. By using extremely high-frequency transmissions, Milstar will provide survivable communications before, during and after a nuclear attack.

Worldwide Airborne Command Post. The Worldwide Airborne Command Post (WWABNCP) fleet of EC-135s has been operating since February 1961. To ensure they remain the most survivable C^3 element during the initial stages of a general war, a modernization program is underway. An improved very low-frequency/low-frequency transmission capability will be developed, assuring improved connectivity to our strategic forces. Under a program called PACER LINK, the EC-135s are being modified with a miniaturized, EMP-hardened, UHF-frequency-division multiplex system.

Other C^3 improvements include improving the coverage of worldwide high-frequency radio stations, fielding a mobile command center for strategic operations, and modernizing the Worldwide Military Command and Control System's standard automatic data processing component. The E-4B National Emergency Airborne Command Post is being upgraded to make it more capable, survivable and reliable so the NCA can more effectively command and control our strategic forces.

ARMS REDUCTION

Arms control and strategic modernization are mutually reinforcing elements of US national security, enhancing deterrence by achieving a more stable nuclear balance. The Air Force strongly supports efforts to reach agreements with the Soviet Union leading to equitable and verifiable arms reductions. We remain hopeful that US-Soviet negotiations on strategic and intermediate-range nuclear forces can produce agreements which significantly reduce nuclear arsenals on both sides, contribute to security at reduced force levels and help reduce the risk of nuclear war. With significant reductions in force structure as proposed, modernization becomes even more important. To maintain the same level of deterrence with less, our remaining assets must be of the highest quality.

NUCLEAR WEAPONS TESTING

Underground nuclear weapon tests are indispensable in maintaining a credible nuclear deterrent. Although computer modeling helps to determine the condition of our nuclear stockpiles, there is no substitute for actual testing, particularly when the average age of our weapons stockpile exceeds 12 years. A deterrent force, ineffective through obsolescence, could prove destabilizing. The US must test to ensure that weapons are safe, reliable and effective and to ensure the US is able to modernize its force in response to advances in technology and evolving threat. Testing provides the technological base for the US nuclear weapons program, a program that has resulted in a 75-percent reduction in total megatonnage and a 28-percent decrease in total warheads since the mid-1960s.

THEATER FORCES

Since the 1960s, the Soviets have steadily expanded their influence into new regions of the world. The USSR has accomplished this expansion while continuing to outproduce the US and its allies in virtually every category of weaponry and while steadily eroding the US qualitative edge by fielding technologically advanced systems. To meet this global threat, the Air Force places high priority on the modernization and expansion of its theater forces.

The forces required to meet the global challenge are a composite of many capabilities: fighter and reconnaissance aircraft, electronic combat forces, special operations forces, intratheater airlift, specialized command and control aircraft and the conventional combat capability of our strategic bombers. Additionally, we need stocks of modern munitions at reasonable cost with the accuracy to neutralize targets, the lethality to counter Soviet hardening features and the toughness to ensure the survivability of our limited assets. A modern command, control, communications and intelligence (C^3I) system is essential to the efficient, flexible employment of a combat force in all theaters.

Geography, allied resources, the political climate and threats in each theater are different; therefore, force requirements are unique. However, procurement of specialized theater systems must be minimized to reduce costs and provide increased theater flexibility. The Air Force seeks to give its systems worldwide applicability by using the most demanding scenario to determine weapon systems requirements. Unique systems are procured only after all other common, alternative systems have been examined.

A series of carefully conceived plans guides Air Force procurement strategies. These plans include the Air Force Aerospace Plan, the Tactical Fighter Roadmap, the Airlift Master Plan and Airlift Total Force Plan, the Special Operations Forces Master Plan, the Munitions Acquisition Plan and the Electronic Combat Master Plan and Roadmap. By following the guidelines laid down in these documents, we achieve the most combat capability, with the least chance of duplication, within fiscal constraints.

We plan to capitalize on our advantages in technology, tactics and dedicated, well-trained people to maintain a combat-ready, flexible, tactical air force. Because of the growth in Soviet military power and the steady improvement in Soviet combat capabilities, we must continue to modernize and expand our tactical air forces while maintaining the sharp edge of readiness.

SOVIET FORCE DEVELOPMENTS

Theater forces face growing air and ground threats. Soviet air forces continue to introduce more capable aircraft, like the FULCRUM A, FOXHOUND A and FLANKER B, with improved avionics and armament systems. These systems also employ improved munitions and are supported by sophisticated electronic combat and command and control systems.

The most significant change since the Soviet air force reorganization of 1978 has been an increased emphasis on the ground-attack mission. The Soviets have transformed their limited range, low-payload, day-fighter force into a potent, long-range, offensively-oriented tactical air arm with increasing capability to operate in bad weather. Since 1980, the Soviets have produced about twice as many fighters per year as the United States, and newer FULCRUM A and FLANKER B air-to-air fighters are now in full-scale production. The new generation of Soviet fighters reflects their intention to equal or exceed the combat capability of US and allied tactical aircraft.

Aircraft suitable for long-range interdiction include: the BADGER, BLINDER and BACKFIRE bombers, as well as the FENCER attack aircraft. FLOGGER and FITTER fighter-bombers fly tactical, ground-attack missions. Direct troop support is the job of FROGFOOT fighter-bombers and HIP and HIND helicopters. FLOGGER and FISHBED air superiority fighters provide defensive cover and escort. Over the next ten years, the US expects the Soviet fighter forces to upgrade to FULCRUM and FLANKER, and the ground-attack force to receive more new FENCER and FROGFOOT aircraft. Many FULCRUM are already in service, and the FLANKER is entering the active inventory.

The Soviets have modernized and expanded their ability to conduct theater offensive chemical and nuclear operations with the deployment of the mobile SS-20 intermediate-range ballistic missile. This system places nearly all of NATO's forces at risk with little or no attack warning.

The mobility and firepower of Soviet ground forces arrayed against NATO have been enhanced by a steady infusion of large numbers of new tanks, infantry fighting vehicles, self-propelled artillery and attack helicopters, enabling them to conduct rapid offensive operations with massive firepower. Soviet operations in Afghanistan have allowed them to test and operate new equipment and train people under actual field conditions.

To protect forward-deployed ground forces, the Soviets are deploying a formidable array of modern, tactical, surface-to-air missile systems and anti-aircraft artillery, supported by a linked array of mobile and fixed radars. A new system, the SA-12, poses a major threat to tactical aircraft. The SA-12 is mobile and expected to have good capability against low-flying US systems.

The Soviets are projecting and building their military power in critical regions throughout the world. Before the early 1970s, Soviet warships seldom steamed into the Pacific in large numbers; now their largest fleet is in the Far East with over 676 ships and submarines and a large number of major surface combatants.

The Soviet Union has a large, modern aviation force in the Pacific. Since 1970, the Soviets have tripled the number of tactical, fixed-wing aircraft dedicated to the Far Eastern theater. In 1965 there were only 20 Russian divisions in the theater; now there are 54. Forty percent of the Soviet ballistic missile submarines patrol Pacific waters, and they have a major naval and air base at Cam Rahn Bay in Vietnam. A naval facility and base for long-range bombers in this strategic location increases their presence and gives the Soviet Union the ability to project power, interdict critical sea lanes and create instability.

Along with their military buildup, the Soviets are giving assistance to Vietnamese forces occupying Kampuchea and threatening Thailand. They also support North Korea's army of over 1.4 million active and reserve personnel. These North Korean forces are maintained at a high state of readiness and pose a direct threat to US and allied forces based in South Korea. The Communist Party of the Philippines and its military arm, the New People's Army (NPA), pose the principal threat to US bases there, arising from NPA capability to wage a terrorist/sabotage campaign against US personnel.

In Central America, the Nicaraguans continue to upgrade their air defense capability by importing additional Soviet anti-aircraft guns and early warning and ground control intercept radars. Nicaraguans have received MiG-21 and surface-to-air missile training abroad and have continued to receive shipments of ammunition, armor and HIND heavy-attack helicopter gunships from the Soviets.

THE TACTICAL CHALLENGE

Forward basing of forces in peacetime and a rapid reinforcement capability in wartime are the foundation of the US commitment and contribution to the security of our friends and allies. The strength of US tactical air forces reflects our commitment and capability to deter the Soviet Union and its allies, or, if deterrence should fail, to resolve the conflict quickly and at the lowest level, on terms favorable to the US and its allies.

The size and composition of US forces for this purpose are determined by a careful assessment of the threat. Exact force structure elements are determined by availability of resources, fiscal and political sustainability and risk assessment. US force goals in all theaters are formulated to provide essential capabilities, minimize unnecessary duplication and ensure that the US and its allies are prepared to preserve peace.

In the air-to-air role, Air Force aircraft must detect, attack and destroy numerically superior, sophisticated Soviet combat aircraft. We must be capable of gaining the initiative and achieving essential air superiority, minimizing potential losses to our limited forces. To be successful, we need competent, well-trained aircrews, autonomous search radars, efficient command and control, a mix of air-to-air missiles and guns, avionics that help us employ these weapons and superior aircraft performance.

In the air-to-surface role, US aircraft must be capable of delivering concentrated, effective firepower in support of the air and surface battles. To do so, our aircraft must be capable of evading and suppressing enemy defenses. They should be able to deliver their munitions day or night, in all-weather conditions, and whenever and wherever enemy forces are conducting offensive operations. Effective, accurate, lethal weapons for Air Force aircraft minimize aircraft vulnerability. Precision-guided and standoff munitions substantially reduce the cost of destroying an opposing force in terms of sorties required and friendly losses.

To ensure the effectiveness of US theater air forces, we require combat support systems to suppress enemy defenses, disrupt enemy command and control capability, provide realtime warning and control, and extend the on-station and mission-duration time of our limited assets. For the suppression and disruption missions the Air Force has deployed F-4Gs with anti-radiation missiles, EF-111s for radar jamming and updated EC-130 Compass Call aircraft. To provide airborne warning and control, we are improving the E-3 AWACS. We are also developing the Joint Surveillance Target Attack Radar System on the E-8A to locate moving ground targets. The air refueling fleet is being improved through the KC-135R tanker modernization program, using re-engining and other modifications to increase each KC-135A's offload capability by 50 percent. These improvements in combat support act as a force multiplier and help offset the quantitative disparity between US/allied forces and those of the Soviet Union and its allies.

ARMS CONTROL AND TREATY RELATIONSHIPS AFFECTING THEATER FORCES

The Air Force strongly supports negotiations aimed at arms reduction agreements improving our national security. Arms control helps maintain the US deterrent, but it is not a substitute for US military preparedness. Sound arms control measures, however, can help limit the threat, reduce uncertainties, constrain strategic program costs and simplify the allocation of critical resources.

Mutual and Balanced Force Reductions talks between NATO and the Warsaw Pact have been underway in Vienna since 1973. These talks are concerned with the reductions and limitations of conventional forces in Europe and with associated confidence building, stabilization and verification measures. On February 14, 1985, the East (Warsaw Pact) presented a new proposal that called for bilateral US and Soviet initial reductions, a no-increase commitment on all forces of both sides and further negotiations to determine final reductions. On December 5, 1985, the West responded with a proposal that called for US/Soviet reduction of

5000 and 11,500 personnel respectively, a three year no-increase period and an enhanced verification scheme. The West also dropped one of its long-standing requirements to have an agreement on the exchanged manpower figures before treaty signature. This major concession was not reciprocated by the East in their February 20, 1986 proposal. This proposal pocketed the West concession and called for initial reductions of 6500 US and 11,500 Soviet personnel. The major issues of ongoing negotiations are the level of initial reductions, the verification regime and the East's demand for inclusion of armaments in the reductions.

The ANZUS Treaty, signed in 1951 by Australia, New Zealand and the US, recognizes that an armed attack in the Pacific area on any of the parties would be dangerous to the peace and safety of all signatories. As such, the member nations have agreed to meet the common danger in accordance with individual jurisdictions, armed forces, public vessels and aircraft. In spite of this cooperative defense agreement, New Zealand refused a port call by a US warship in 1985 unless the US first declared whether or not that ship carried nuclear weapons. As a consequence, the US suspended its security obligation to New Zealand in August 1986.

TACTICAL FIGHTER ROADMAP

In any conflict, US tactical air forces must be able to do two things: (1) quickly achieve air superiority so that our ground and air forces can fight and be reinforced free from disruption by enemy air attacks, and (2) provide critical offensive air support to ground forces. In the air-to-air role, our aircraft must be able to detect and destroy numerically superior, sophisticated Soviet aircraft. In the air-to-surface role, these aircraft must be able to evade and suppress enemy defenses and deliver ordnance in all-weather conditions, when and where required. Achieving these ends requires a fighter force large enough to do the job and the proper mix of air-to-air and air-to-ground weapons delivery capabilities. Three years ago, the Air Force developed the Tactical Fighter Roadmap to guide achieving and maintaining this force. Since then we have updated it in response to changing threats and fiscal constraints.

Air Force global commitments and the strategy to meet these commitments require that we plan for worldwide deployment. These demands, compounded by the size and lethality of Soviet air and ground forces, dictate a requirement in excess of 40 tactical fighter wing equivalents. The Air Force is also required to maintain 14 fighter squadrons for strategic air defense of US territory.

In the past, the Air Force established an interim force-structure goal of 40 tactical fighter wing equivalents. This represents the minimum force needed to address the threat projected for the 1990s. To reach this level, maintain the force age at an average of 10 years and simultaneously modernize our strategic air defense force, between 260 and 280 aircraft must be procured annually. Under present fiscal constraints, this procurement level is not possible. Consequently, the Air Force reviewed these goals and revised our fighter acquisition and modernization strategies, while maintaining the goal of 40 tactical fighter wings.

As a result of this review, we are developing modification programs for current inventory aircraft to increase capability, serviceability and aircraft service life. Historically, aircraft have been retired when they can no longer meet the mission demands. For planning purposes, 20 years has been considered the useful life span of a fighter aircraft. Some systems, like the F-111, will be retained in the force beyond 30 years because they are not routinely subjected to high-G loading and, with modifications, can continue to provide excellent combat capability. Conversely, the F-4C has become difficult to maintain and operate because of its mission and age. Modifications to ensure combat capability have continually been made to the F-4C fleet, but cost considerations and the present threat they face dictate a retirement date no later than FY 89.

The Air Force will continue to explore every available avenue to procure the force structure necessary to protect our national interests. To reach our objectives in the most cost effective manner, we will continue to revise the Tactical Fighter Roadmap. The President's FY 88 budget reflects the actions we must take to get the maximum capability from our present force of approximately 37 tactical fighter wing equivalents.

The Air Force is requesting 222 tactical fighters (42 F-15Es and 180 F-16C/Ds) in FY 88. The remainder of the FYDP includes an annual buy of 42 F-15Es and 180 F-16s (150 in FY 92) to modernize our tactical forces.

The Air Reserve Forces constitute a vital and substantial portion (approximately one-third) of the total tactical fighter force. The Air Force Reserve (AFR) and Air National Guard (ANG) have demonstrated quick response and effectiveness when called on to augment the Active forces. All ANG and AFR tactical fighter units have demonstrated readiness to respond to worldwide deployment tasking on short notice. Current and programmed modernization efforts ensure these forces will retain capabilities comparable to the Active units they augment.

The Air Reserve Forces will continue to grow and modernize at a rate equivalent to the Active force. Additional ANG and AFR units will re-equip with F-15s, F-16s and special-capability F-4s to replace older, less-capable F-4C/Ds and F-106s. Also, the F-4Ds and Es are being modified with low-smoke engines and an AIM-9L/M capability to make them more survivable and effective. Additionally, A-7 and A-10 aircraft are being upgraded.

F-15. To help meet the air threat and provide long-range surface-attack capability, we are procuring the F-15E Dual Role Fighter. The F-15E retains its basic air superiority advantage and includes mission-specialized cockpits, new avionics, Low-Altitude Navigation and Targeting Infrared for Night and additional air-to-surface weapons capability. In this configuration, the F-15E can perform all-weather navigation, deep penetration and night/adverse-weather attack with large air-to-surface weapons payloads and air-superiority missions, if needed. The FY 88 budget submission requests funding to procure 42 F-15Es, provide initial spares and continue necessary RDT&E.

The F-15 Eagle is armed with AIM-7 and AIM-9 missiles and the M-61 20mm cannon. This fighter provides close-in, visual and medium-range, all weather kill capability and has replaced the F-4E as the primary air-superiority fighter in the tactical air forces.

To maintain the F-15's competitive edge over the threat, the Air Force has initiated development and production of avionics changes to enhance the F-15's air superiority and air defense capabilities through the 1990s. These avionics changes for the air-to-air role include: software updates to the radar, addition of the AIM-120 Advanced Medium Range Air-to-Air Missile (AMRAAM) and incorporation of improved communications and identification equipment. The avionics changes also include updates to the electronic warfare system. Improvements to the radar have been initiated to incorporate much greater computer speed and memory; greater bandwidth and frequency flexibility; and computer-enhanced, air-to-air, electronic counter-countermeasures modes and identification features. Our Multi-staged Improvement Program calls for incorporation of these improvements during production and retrofit for aircraft already delivered.

Introducing the AMRAAM will significantly improve F-15 lethality and survivability. The AMRAAM's performance envelope is significantly greater than that of the AIM-7F/M. AMRAAM will provide the pilot a launch-and-maneuver capability, add the capability for multiple-target attacks during a single intercept and have improved resistance to electronic countermeasures. Greater accuracy and speed, improved fuzing and increased warhead lethality combine to double the effectiveness of the F-15 and increase effectiveness of the F-16 six times in the air-to-air role.

F-16. The F-16 is a single-engine, lightweight, high-performance, multimission fighter. The Air Force plans a total buy of 2729 F-16s through FY 95 to replace aging F-4s and to modernize the Air Reserve Forces. F-16C/D aircraft procured in FY 88 will include numerous improvements over the original F-16A/B. The F-16C/D has a reconfigured cockpit, improved radar and increased computer capacity. These improvements will facilitate the incorporation and employment of advanced subsystems, including AMRAAM, LANTIRN, the Airborne Self Protection

Jammer (ASPJ), the ALR-74 or ALR-56M radar warning receiver and Navstar Global Positioning System equipment.

In FY 88, the Air Force is requesting funding for the procurement of 180 aircraft plus initial spares in the third year of a four-year, multi-year procurement. This is a follow-on to the original F-16 multi-year procurement that spanned FY 82-85 and saved $257 million. The follow-on, multi-year program (FY 86-89) was approved in FY 85. The recently concluded negotiations for this F-16 multi-year contract resulted in savings of $467 million.

In October 1986 the Air Force selected the modified F-16A as the winner of the congressionally directed air defense fighter (ADF) competition. We will retrofit 270 F-16As with a radar missile capability (AIM-7 Sparrow and AIM-120 AMRAAM), updates to the existing APG-66 radar and a long-range radio. F-16 ADF models will begin service in FY 89 with the last modified aircraft due off the retrofit line in FY 91. These aircraft will be operated exclusively by Air National Guard units.

The modernization of the Air Reserve Force with the F-16 continues. The ANG activated two additional F-16 units in FY 86, and the AFR will activate its second F-16 unit in FY 87.

LANTIRN. The Low Altitude Navigation and Targeting Infrared System for Night (LANTIRN) provides the capability for the F-15E and F-16C/D to ingress and egress the target area below enemy air defenses at night and beneath adverse weather. LANTIRN allows the pilot to find and accurately attack tactical targets with IR Maverick missiles, laser-guided bombs and other conventional ordnance. The system consists of a navigation pod and a targeting pod. The navigation pod contains a terrain-following radar (TFR) and a fixed, infrared sensor. The TFR data and infrared image are displayed on a head-up display to provide a night window to the pilot. The targeting pod contains a laser designator; a dual field-of-view, gimbaled, infrared sensor; a missile boresight correlator for aligning the IR Maverick seeker to the targeting pod picture; and the processors/cooling unit needed to service the pod.

The development and production programs of the LANTIRN Program are cost capped with firm, fixed-price contracts. The FY 88 budget requests development funds for continued integration flight testing of LANTIRN on the F-15E and integration/development flight testing of Auto Terrain Avoidance on the F-16. The requested procurement funds will purchase 169 navigation pods, 81 targeting pods, 12 sets of support equipment and initial spares.

The navigation and targeting pods had early deficiencies during initial operational test and evaluation. The Air Force Systems Acquisition Review Council (AFSARC) Milestone IIIA decided to proceed with low-rate initial production (LRIP) of the navigation pod in March 1985. Follow-on testing of the navigation pod was excellent, and a Joint Resource Management Board (JRMB) full-rate production decision was made in November 1986. Navigation pod performance remains excellent, and its reliability now stands at approximately 33 hours mean-time-between-maintenance (MTBM), well ahead of the projected 19 hours. The AFSARC IIIA decided on LRIP on the targeting pod in June 1986. Continued low-rate production for the targeting pod was approved at the October 1986 JRMB. Follow-on testing with the targeting pod has been outstanding, and the reliability now stands at approximately 40 hours MTBM, ahead of the projected 31 hours. A full-rate production decision is scheduled for September 1987 after completion of testing.

Advanced Tactical Fighter. The Soviets are introducing a new generation of fighters with look-down, shoot-down capability, as well as large numbers of improved surface-to-air missiles and an airborne warning and control aircraft to detect and direct attacks on low-flying aircraft. This generation of Soviet fighters is projected to appear in significant numbers by 1995 and will exceed Air Force ability to counter them with F-15s and F-16s. These new threat aircraft will have vastly improved maneuverability, acceleration and fire-control capability (all-aspect, look-down/shoot-down, beyond visual range), roughly equivalent to our F-15s. If not countered, this new and growing threat will deny the Air Force the protection of low-altitude tactics and reduce the effectiveness of our other tactics used to penetrate hostile airspace.

The Advanced Tactical Fighter (ATF) Program will develop a new fighter aircraft for introduction in the mid-1990s. A follow-on to the F-15, the ATF will be an air superiority fighter capable of performing offensive counterair operations in enemy airspace and countering current and projected Soviet fighters. With an effective first-look, first-kill capability, the ATF will be lethal, durable and survivable in a high-threat environment. Improved supportability features which permit high sortie rates are being designed in from the outset.

The ATF Program was restructured during FY 86 to reduce technical and cost risk, emphasize fly-before-buy and competition, and implement recommendations of the Packard Commission. In October 1986, the Air Force awarded contracts to two contractor teams, one led by Northrop Corporation and the other by Lockheed, to conduct the demonstration/validation phase of the program. During this four-year risk reduction period, we will perform tradeoff studies, identify and evaluate feasible design options, focus critical technologies and test/demonstrate hardware to reduce risk before entering full-scale development in FY 91. Each contractor team will build two flying prototypes and one avionics demonstrator. First flight of the prototypes (Lockheed model designated YF-22A, Northrop designated YF-23A) is scheduled for early FY 90. The FY 88 budget request for ATF development continues funding for this critical demonstration/validation phase.

Alternate Fighter Engine. The Air Force initiated the Alternate Fighter Engine (AFE) Program in 1983 to provide greater availability of fighter engines and to bring the benefits of competition to the fighter engine market. The subsequent competition was based upon the durability, reliability, maintainability and operability of the General Electric F110-GE-100 and Pratt & Whitney F100-PW-220 engines, as demonstrated in tests and supported by contractor warranties. The competitive source selection was completed in 1984, and one-year, firm, fixed-price contracts were awarded to both companies. Both contracts contained firm-price options for following years, and the Secretary of the Air Force has annually released additional contracts to each company for a portion of the fighter engine requirement.

The engine production quantities awarded to Pratt & Whitney and General Electric in the future will continue to be determined by deployment plans, contractor performance, demonstrated readiness and supportability, industrial base for high-performance engines, congressionally approved programs, and the best balance of engines to satisfy Air Force requirements. The yearly procurement decision by the Secretary will continue through FY 90, based on the six years of pricing data contained in the original contractor proposals, or until higher thrust derivatives of these engines are required. The AFE program is an outstanding example of the competitive acquisition process.

Increased Performance Engines. The Increased Performance Engines (IPE) Program supports the Tactical Fighter Roadmap through development of higher thrust versions of the Pratt & Whitney Aircraft F100-PW-220 and General Electric F110-GE-100 engines for F-15/F-16 aircraft no later than 1990.

Based on the results of an Air Force study, the Secretary of the Air Force decided in May 1985 to begin an IPE Program to achieve the required level of engine performance to counter the threat aircraft of the early 1990s. The Air Force began initial engine development and demonstration under the Engine Model Derivative Program and is now transitioning into full-scale development under the AFE Program. This has been consistent with congressional direction which provided $50 million in FY 84 and $73.5 million in FY 85 to initiate the higher thrust engine development program.

The goal of the IPE Program is to produce growth engines in the 29,000-pound thrust range and maintain at least the current AFE levels of durability, operability, reliability, maintainability and life-cycle cost. Both contractors will draw on their latest demonstrated component technologies to achieve higher thrust, including such improvements as more efficient compressors, higher temperature combustors and turbines, and state-of-the-art, digital engine controls. The Air Force FY 88 request for funding allows the IPE development effort to continue.

TACTICAL RECONNAISSANCE AND ENGAGEMENT SYSTEMS

Tactical Reconnaissance and Engagement Systems are a group of related programs to provide a comprehensive picture of the battlefield and allow theater commanders to engage targets in near realtime. The programs are complementary and provide a standoff and penetrating capability. Standoff programs include the Advanced Synthetic Aperture Radar System (ASARS II) to detect fixed targets and Joint Surveillance Target Attack Radar System (Joint STARS) for detecting moving targets. Standoff reconnaissance alone will not meet the needs of the theater commander for accurate, up-to-date information. The Advanced Tactical Air Reconnaissance System (ATARS) will help satisfy this information requirement by providing a penetrating capability, both manned and unmanned. The Air Force is requesting funding in FY 88 to continue the development of these systems.

Joint STARS is an Air Force/Army program to field a common radar and attack control system for the Airland Battle. The Joint STARS E-8A platform (formerly called the C-18) carries a multi-mode radar for detection and tracking of enemy forces, processing equipment, controller stations and command and control interfaces. Joint STARS will provide targeting information to tactical aircraft with standoff missiles or to artillery, permitting precise, realtime attacks against moving armored vehicles. These capabilities make Joint STARS a key to the NATO Follow-on Forces Attack (FOFA) initiative proposed by SACEUR. Under the FOFA strategy, Joint STARS will detect mobile enemy ground forces and provide targeting data to tactical forces for attacks from standoff ranges. These attacks will control the enemy forces rate of entry into the battle and prevent breakthrough of allied positions. Requested funding in FY 88 will continue the development effort.

The TR-1 is the airborne platform for the Tactical Reconnaissance System (TRS). In the TRS configuration, the TR-1 carries the ASARS II imaging radar and several other sensors. Information collected by these sensors is transmitted on a digital data link to a TR-1 ground station that processes and sends out reports in less than 15 minutes to users from Army group or Air Force level down to division and air operations centers. In FY 88, funding is requested for continued TRS development, procurement and initial spares.

ATARS is an umbrella concept for the full-scale development of a family of electro-optical (EO) sensor suites (sensors, recorders, reconnaisance management system and data-link sets) for upgrade of both USAF and Department of the Navy manned and unmanned reconnaissance systems. ATARS will satisfy the needs of tactical commanders for detection, location and classification of tactical targets with sufficient location accuracy to permit timely delivery of air or ground-launched weapons. ATARS is broken into two program elements: the Tactical Air Reconnaissance System (TARS) and Unmanned Air Reconnaissance Systems System (UARS). The TARS Program focuses on the EO sensor-suite development for near-term integration into the RF-4C, a joint USN/USAF medium-range, unmanned system and a follow-on tactical reconnaissance pod for carriage on a fighter aircraft. In addition, the program focuses on the development of a tactical ground station using modular technology developed under the joint USAF/USMC/USA Advanced Deployable Digital Imagery Support System. The ground segment will be common to Air Force manned and unmanned systems. The FY 88 budget request will allow continuation of the EO sensor-suite and ground-station development.

The UARS segment of ATARS is a joint Navy/Air Force, medium-range, unmanned system in which the USN is lead Service for platform development, and the USAF is lead for sensor-suite development in the TARS program. Unmanned air reconnaissance vehicles have advantages and disadvantages compared to manned systems. The unmanned system can be developed at a lower cost and can be employed without endangering crew members' lives. This makes the UARS a prime reconnaissance candidate for use against heavily defended, fixed targets, prior to suppression of enemy air defenses. However, unmanned systems lack the mission flexibility provided by manned systems. The UARS has a preprogrammed mission, cannot detect, avoid or react to air or mobile ground-based threats and cannot adjust for inclement weather in the target area. The Air Force will develop the UARS to complement, not replace, current and future, manned, tactical reconnaissance systems.

ELECTRONIC COMBAT

The goal of electronic combat (EC) is to deny the enemy effective use of electromagnetic capabilities and retain access to the electromagnetic spectrum for our own use. EC includes electronic warfare; elements of suppression of enemy air defenses; and elements of command, control, and communications countermeasures. EC improves forces survivability, exploits weaknesses in an enemy's ability to wage war, and applies force against offensive, defensive and support systems. The net results of EC include reducing enemy engagement opportunities, fragmenting and confusing defensive efforts and shortening exposure time to enemy weapons, all of which reduce attrition. Thus, EC can be a prime factor in reducing combat aircraft attrition and increasing force effectiveness.

Today, virtually every aspect of modern warfare is dependent on the use of electronics. Interdependence between electronic systems is growing and will continue to grow as systems are automated and integrated. The technological advantage the United States has enjoyed for decades is diminishing with the proliferation of sophisticated Soviet electronic systems. The Air Force EC capability must stay ahead of Soviet advances as they continue to improve their integrated air defense system (IADS). Failure to keep pace with the constantly evolving threat could lead to unacceptable attrition in future combat.

The 1973 Middle East War provided a preview of electronic technology applied in an IADS environment. Israel's 1982 action in Lebanon's Bekaa Valley demonstrated the impact of EC and provided a new baseline for expanding electronic weapon system requirements. The April 1986 raid against Libya again highlighted the importance of EC in a modern combat scenario. Proliferation of battlefield electronics is stressing US capability to respond to each new system or modification. Consequently, the Air Force is developing flexible systems with a rapid reprogramming capability to respond to a broad array of threats and provide weapon system protection. Our task is to provide combat commanders the equipment and personnel necessary to effectively exploit, deceive, jam and destroy elements of the enemy's air defense and command and control systems. Achieving this goal depends on a sound technology base and timely, prudent systems acquisition.

The Air Force has developed an EC Master Plan and Roadmap (ECMP&R) that integrates Air Force EC plans and programs into a unified statement showing EC requirements for Active, Reserve and Air National Guard components in a fiscally achievable structure. The ECMP&R documents current EC capabilities, identifies limitations and deficiencies and presents recommendations to establish a viable EC capability through the year 2010. The mix of EC systems outlined in the ECMP&R is based on the EC support needed for the total tactical force structure and the requirement for every combat-coded aircraft to have a self-protection capability. According to plan, we must increase our EC force structure and improve self-protection systems; therefore, the Air Force is requesting development and procurement funds in FY 88 to build and sustain a complementary mix of destructive, disruptive and self-protection EC systems.

ALR-74/ALR-56M Radar Warning Receiver (RWR) Competition Program. The ALR-74 evolved as a modification to the ALR-69 to provide radar warning of new and expected Soviet threat systems. Similarly, the F-15 ALR-56A required modification (ALR-56C) to cover these new threats. The ALR-56C will be repackaged for the F-16 form/fit (called ALR-56M) and competed with the ALR-74. The winning RWR will be installed in production F-16C/D aircraft and retrofitted in RF-4C aircraft. The funding request in FY 88 will continue flight test support for the competition.

Electronic Countermeasures (ECM) Pods. ECM pods are procured to provide self-protection for aircraft that lack internal countermeasures systems. While internal systems are preferable, retrofit costs are prohibitive for many aircraft. As a result, the Air Force has a continuing requirement for ECM pods on aircraft such as the A-7, A-10, AC-130, F-16/A/B/D and F-4. The FY 88 request updates 96 inventory ALQ-119 pods to ALQ-184s and procures standard support equipment for the ALQ-131 and ALQ-184. Additionally, the requested funds will continue updates to system support centers.

AN/ALQ-165 Airborne Self-Protection Jammer (ASPJ). To the maximum extent possible, the Air Force attempts to install internal ECM systems because of the penalty imposed by external pods. Pods, besides tying up a weapons station, produce drag and are limited in the coverage their antennae can provide. The ASPJ, designated the AN/ALQ-165, is a joint Air Force/Navy engineering development program for an internally mounted ECM system; the Navy is the lead Service. The ASPJ will provide self-protection and increase the probability of aircraft survivability when various tactical aircraft (F-16, F-14, F/A-18, A-6E and AV-8B) are confronted by modern, diversified, radar-controlled weapon systems. Development of associated support equipment, alternate technology and aircraft integration are included in this program. The Air Force is requesting funding in FY 88 for continued development and for procurement.

Integrated Electronic Warfare System (INEWS). INEWS is an Air Force-led, joint Air Force/Navy program to develop the self-protection suite of the 1990s and beyond for the Advanced Tactical Fighter (ATF), the Navy's Advanced Tactical Aircraft (ATA) and other advanced technology aircraft. INEWS is an outgrowth of the New Threat Warning System which began advanced development in 1979.

The need for an advanced self-protection suite is driven by the technologically-advanced threat environment in which the ATF, ATA and other advanced technology aircraft will be forced to operate for their projected life cycles. This threat consists of airborne and surface-based defense systems and the command, control and communications networks that link them together. INEWS will provide aircrews timely and accurate threat warning and automatic application of optimum countermeasures, such as in-band jamming and expendable countermeasures (chaff, flares and advanced expendables) to counter this threat. The self-protection suite threat response must be tailored to the specific mission requirement and threat environment. Effective implementation of INEWS demands a defensive capability fully integrated with other aircraft sensors and avionics to achieve total weapon system synergism. We are requesting development funds in FY 88 for continued work on this vital technology.

AIR-TO-SURFACE MUNITIONS

The wide diversity of military threats the US faces requires the Air Force to procure a mix of quality air-to-surface munitions for airfield attack, anti-armor, defense suppression, close air support and interdiction. We are buying weapons to employ during day, night and adverse weather conditions. These weapons afford us the flexibility to employ standoff tactics early in the conflict when critical targets must be struck in the face of heavy air defenses. Then we can use more economical direct-attack tactics as the enemy's defenses are drawn down. We are preparing to conduct operations in a chemical weapons environment and retaliate with chemical weapons. Sustainability requires procurement of weapons in quantities to satisfy consumption rates until resupply networks are functional and industrial mobilization can be achieved. The FY 88 request is designed for readiness and sustainability.

Dispenser Munitions. The Air Force is acquiring a series of new dispenser munitions including the Combined Effects Munition (CEM), currently in production; and the Sensor Fuzed Weapon (SFW) and the Direct Airfield Attack Combined Munition (DAACM), in development. Each of these systems consists of submunitions dispensed from the Tactical Munitions Dispenser (TMD).

CEM consists of the TMD packaged with 202 Combined Effects Bomblets. CEM is a direct-overflight, area weapon to attack light-to-medium armor, vehicles and personnel with unguided submunitions. The bomblet contains a shaped charge to defeat armor, blast fragmentation for softer targets and personnel, and an incendiary capability. The Air Force is requesting funding in FY 88 to procure approximately 14,000 weapons.

DAACM began development in FY 86, and the FY 88 request is for continued development funds. The munition consists of the TMD packaged with eight Boosted Kinetic Energy Penetrators (BKEPs) for effective runway cratering and 24, British-developed, HB-876 airfield-denial mines to impede runway repair operations. The weapon will provide direct attack capability against runways and is planned as a follow-on to the French-built Durandal airfield attack munition. Air Force procurement of DAACM begins in FY 90.

SFW provides direct attack against armor, achieves multiple-kills per pass and can be employed during day, night and limited, adverse weather conditions. Each weapon weighs about 1000 pounds and consists of the TMD packaged with ten Skeet delivery vehicles, each containing four Skeet warheads. Individual Skeets fly out radially when deployed, scanning the ground for targets. When a target infrared signature is detected, a self-forging, armor-piercing slug is fired into the target. Full-scale development started in November 1985; production is planned for FY 89. We are requesting funding in FY 88 for weapon development, fabrication of test hardware and development/operational testing.

AGM-130A. The AGM-130A is an air-to-ground missile designed to attack high-value targets from standoff ranges to reduce delivery aircraft attrition. The missile is a Preplanned Product Improvement of the GBU-15, which the Air Force is procuring through FY 87. The AGM-130A shares the 2000-pound, unitary warhead and the television (TV) or imaging infrared (IIR) seeker of the GBU-15. A rocket motor has been added to extend the delivery standoff range. The AGM-130A will have an improved, anti-jam data link for control in an ECM environment. Force structure for the AGM-130A is planned to include the F-4E, F-111F and F-15E. We will continue full-scale development and low-rate procurement with the requested FY 88 funding.

AGM-65 Maverick. Maverick is the Air Force's primary tactical air-to-surface missile. It provides a high, single-shot probability of kill against close air support, interdiction and defense suppression targets. The inventory versions include the TV-guided AGM-65A and B. The TV seekers limit use of these Mavericks to daytime only.

The Infrared (IR) Maverick Program was established to expand the proven Maverick utility to night and adverse weather conditions against a broader spectrum of targets. The Air Force IR Maverick (AGM-65D) employs an imaging, infrared (IIR) seeker and a 125-pound, shaped-charge warhead. The Navy version (AGM-65F) has the same IIR seeker, but employs a 300-pound, kinetic-energy blast/penetration warhead. This year the Air Force will convert 300 of the planned AGM-65D missiles procured in FY 86 to the 300-pound, blast/penetration warhead like the Navy AGM-65F. The Air Force IR Maverick with the 300-pound warhead will be designated the AGM-65G. We are requesting funding in FY 88 to procure 2100 missiles and initial spares.

High-Speed Antiradiation Missile. The High-Speed Antiradiation Missile (HARM) is the only in-production, suppression of enemy air defense (SEAD) weapon that can destroy the majority of planned and fielded threat radars from standoff ranges. Air Force and Navy procurement of HARM continues in the FY 88 budget request.

The HARM is being integrated on the F-16 to augment the F-4G SEAD force. The F-16 will carry two HARMs and fly wingman to the F-4G which provides targeting data for handoff to HARM. Only a launcher avionics modification is required to implement the HARM on F-16s.

Development continues in FY 88 on two improved HARM seeker designs to defeat more capable surface-to-air missile threats. The low-cost seeker design involves a complete redesign of hardware and software, while the second design is a modification of the current seeker.

AIR-TO-AIR WEAPONS

The efficiency of US fighter aircraft engaged in aerial combat is ultimately related to the effectiveness and availability of air-to-air weapons. Today our weapons for medium and short-range, air-to-air combat are the Sparrow (AIM-7) and Sidewinder (AIM-9), respectively. The AIM-7 can be launched from the Air Force F-15 and F-4, and from the Navy F/A-18, F-4 and F-14. The AIM-9M can currently be employed on the Air Force F-15 and F-16, and on the Navy F-4, F-14, F/A-18, A-4, A-6, A-7 and AV-8. Through the Air Force's self-defense aircraft modification program, AIM-9L/Ms will soon be carried on the F-4, F-111, A-7 and A-10 aircraft. As a result of slips in the AMRAAM development program, the Air Force decided to procure additional AIM-7s through FY 88 for existing aircraft and the F-16 Air Defense Fighter. Our FY 88 budget requests funding for 558 AIM-7Ms and 956 AIM-9Ms.

The Soviet Union enjoys a substantial numerical advantage over the US in tactical fighter force structure. Traditionally, the US has met this quantitative gap by fielding higher quality weapon systems with greater kill ratios to offset numbers. However, Soviet fighters with enhanced flight and avionics performance, armed with newer, more capable air-to-air missiles, are entering the Soviet inventory and eroding our qualitative advantage. To retain the superior characteristics of the US fighter force, we require a new family of air-to-air missiles that provide improved flexibility, range and lethality. This includes the capability to launch missiles at a target, and then maneuver to evade or engage another target while the launched missile completes the attack, independent of radar and avionics on board the aircraft.

Advanced Medium Range Air-to-Air Missile. The Advanced Medium Range Air-to-Air Missile (AMRAAM) is the number one tactical priority and is the next-generation radar missile being developed by the Air Force. AMRAAM will be used by the Air Force, Navy and our NATO allies. Compared to the current Sparrow, AMRAAM is a major advance in missile capability. The Sparrow is a semi-active radar missile that must be guided to one target at a time. A US fighter performing a long-range attack is vulnerable during the 30 or more seconds that he must keep his radar fixed on the target. The AMRAAM is an active radar missile, permitting true launch and maneuver capability. The US fighter pilot attacking with AMRAAM is less vulnerable to enemy fire.

AMRAAM provides increased velocity, longer range, better maneuverability, a more lethal warhead, improved terminal guidance with an active radar seeker and a larger employment envelope. These characteristics give pilots opportunity for multiple launches during a single pass, launch and maneuver capability and improved electronic counter-countermeasures. The missile will be compatible with all USAF and USN frontline fighters and will also meet NATO requirements for air superiority and air defense aircraft. The missile's characteristics and compatibility with US fighters and those of our allies will greatly increase survivability and lethality against a numerically superior adversary. AMRAAM capability is absolutely essential to maintain a qualitative edge over Soviet fighters in the 1990s.

Development Test and Evaluation/Initial Operational Test and Evaluation (DT&E/IOT&E) on the F-16 and F-15 continued in FY 86 and early FY 87 with a success rate better than ever attained by a complex air-to-air missile (21 successes in 24 firings). DT&E/IOT&E will continue in FY 87 and be completed in FY 88. The current test launch rate will support the April 1987 low-rate initial production decision. The addition of the third test site, approved in the FY 87 DOD Authorization Act, ensures maximum information will be available for the FY 89 full-rate production decision.

The Air Force began qualifying the second-source, follower contractor in FY 86. The early introduction of the second source will result in competitive savings to the Air Force starting with Lot III missiles rather than Lot IV as originally planned. In FY 88 we seek low-rate production funds for 630 Lot II missiles, split between the two producers. The FY 88 request for development funds will conclude the AMRAAM full-scale development.

Advanced Short Range Air-to-Air Missile. The Advanced Short Range Air-to-Air Missile (ASRAAM) is being developed by the United Kingdom, West Germany and Norway. The ASRAAM will be faster, more maneuverable and will have a higher resolution seeker than the AIM-9. Through the provisions of the family of Air-to-Air Weapons Memorandum of Understanding among the US, UK and FRG, the US has the right to procure, co-assemble or dual-produce ASRAAM, while European partners have the same rights to AMRAAM. The Air Force currently plans to carry the ASRAAM on the F-15 and F-16 and is considering its potential application on future aircraft. The requested FY 88 development funds will accomplish preliminary work for upcoming ASRAAM flight tests.

CHEMICAL WARFARE

The Soviets consider chemical warfare part of the continuous spectrum of conflict and maintain a considerable chemical warfare advantage over the US and NATO. The Soviet chemical industry has the capability to produce toxic agents at a rate sufficient for military requirements. A large quantity of agents is stored in at least nine chemical depots located throughout the USSR. Chemical warfare research and development continues; several new facilities were constructed at their chemical agent proving grounds since the late 1970s. In short, the substantial Soviet advantage in chemical warfare continues to grow.

The Air Force must plan to defend against the effects of chemical warfare and also be able to retaliate in kind. Current defensive protective gear provides adequate protection, but causes problems such as induced heat stress, restricted movement and vision, and degraded communications. Some tasks, already difficult under combat conditions, become almost impossible, and many simple tasks take longer, resulting in far fewer sorties. Our capability for sustained operations is further limited by the lack of collective protection facilities where personnel can rest, eat and sleep without wearing protective gear. Better protective systems must be developed to allow our forces to operate more efficiently during and after a chemical attack. The FY 88 Chemical Warfare Defense Program request for funding continues the development and procurement of aircrew and groundcrew masks, improved protective gloves and clothing, advanced chemical agent detection and warning systems, survivable collective protection systems, and new decontamination equipment.

Even with improved defensive equipment, the Soviets can create a significant advantage if we are forced to operate under protective conditions. In fact, our lack of effective retaliatory capability and the reduced efficiency of operations in protective gear, provide the Soviets with a powerful incentive to use chemical weapons. The BIGEYE binary munition is a joint Air Force/Navy program, led by the Navy, to give the United States the persistent chemical agent we now lack with our unitary chemical stockpiles. An effective retaliatory capability, combined with a strong chemical defense, will provide a credible deterrent; both elements, defensive and retaliatory, are essential. The Air Force is requesting funds in FY 88 for BIGEYE procurement.

TACTICAL COMMAND, CONTROL, COMMUNICATIONS AND INTELLIGENCE

As in the strategic area, command, control, communications and intelligence (C^3I) are vital for successful tactical operations. The Air Force relies heavily on C^3I to disseminate intelligence and sensor information, to coordinate and mass forces, and to direct actions against the enemy. The 1973 Middle East War and Air Force and NATO exercises show that jam-resistant, air-to-air and air-to-surface UHF and VHF voice communications are essential for effective command and control. To support this requirement, we are requesting funding in FY 88 for development and procurement of improved HAVE QUICK radios (jam-resistant UHF). We are also requesting funds to continue the development of an airborne SINCGARS-V (jam-resistant VHF).

The ground-based Tactical Air Control System (TACS) deployed in the late sixties and early seventies has several major problems including wear, lack of survivability, limited mobility, obsolete technology, limited supportability and computer capacity saturation. The principal near-term improvement is the acquisition of Modular Control Equipment (MCE). MCE will provide replacement units for the Control and Reporting Center and Control and Reporting Posts, the Message Processing Centers and the Forward Air Control Posts. In addition, the MCE program will provide the hardware baseline for the Ground Attack Control Capability (GACC). The GACC is a software development effort to provide the TACS with a capability to control the air attack of time-sensitive, mobile, ground targets. We are requesting funding in FY 88 for continued development of MCE and GACC and for procurement of six MCE operation modules and spares.

Joint Communications. Data communications are essential for distributing detailed information throughout the battlefield. The Joint Tactical Information Distribution System Program is developing a jam-resistant, secure, digital system that will link ground and airborne command and control nodes, surveillance facilities, intelligence centers, naval vessels and combat and support aircraft. The small, Class 2 terminal is being developed for Air Force, Army and Navy tactical requirements. The FY 88 request will continue the development effort.

The joint Service TRI-TAC Program is being deployed to provide digital telephone, facsimile and message transmission services. TRI-TAC message switches, troposcatter radios, message centers and user instruments replace antiquated analog systems currently in use. TRI-TAC provides TACS operations and support personnel with survivable communications within and between theaters. We are requesting FY 88 funding to continue procurement of TRI-TAC units.

Tactical C^3 Survivability. The survivability of Air Force tactical C^3 equipment depends on being able to disperse the equipment and minimize radar signature patterns. Our tactical C^3 equipment is deficient in both areas. Radio and radar remoting is currently limited, increasing the antiradiation missile (ARM) threat to the operations centers. We cannot currently disperse elements of the operations centers, and deployed radars are vulnerable to an ARM threat due to the energy radiated in sidelobes and backlobes. Air Force tactical C^3 survivability programs seek to correct these deficiencies. Additionally, introduction of MCE will allow dispersal of C^3 operations centers to complicate an adversary detecting and locating these critical command centers.

The Ultra-Low Sidelobe Antenna Program will produce a slotted waveguide antenna reducing the amount of sidelobe and backlobe radar energy on which an ARM could guide. ARM alarm sensors will provide warning when missiles approach the radar. The ARM decoy program provides decoys, deployed several hundred meters from the radar to lure the incoming ARMs away from the radar. We are requesting funding in FY 88 to continue the development and acquisition of these survivability features.

Tactical Air Traffic Control and All-Weather Landing Capability. Mobile air traffic control and precision landing capability are key to safety and flexibility in tactical air forces. Our current equipment has become unsupportable and unsurvivable in a high-threat combat scenario. This requirement for a high-volume, survivable, surveillance radar is addressed in the New Mobile Radar Program with the US Marine Corps. Precision, all-weather recovery capability will improve with the Mobile Microwave Landing System (MLS). The FY 88 request will continue development of the Mobile MLS.

COMBAT IDENTIFICATION SYSTEMS

Combat identification is the process of determining if a force is friend or foe. Air combat has changed from the days when simple visual identification was the only method to discern combatants. Today, the multitude of forces that may be involved and the influence of long-range weapons and sophisticated electronic jamming systems combine to make identification a more difficult process.

In the European theater, combat identification will be critical to achieving NATO objectives in any conflict with Warsaw Pact forces. The Air Force role of achieving air superiority and supporting ground forces is essential if we are to defeat numerically superior opposing forces. This air superiority will have to be achieved in a situation where hundreds (and perhaps thousands) of aircraft will be engaged in a relatively limited space. Aerial combat effectiveness can also be improved if the identification capability extends beyond the visual range but remains within range of advanced air-to-air missiles.

The Mark-XV (MK-XV) Identification Friend or Foe (IFF) system is the US component to the NATO Identification System, Question and Answer Component. The MK-XV will offset deficiencies in the current MK-XII IFF while maintaining backward compatibility with MK-XII hardware. When deployed, the MK-XV will be one part of an enhanced air combat capability for intense aerial combat environments and for beyond-visual-range engagement.

Non-cooperative identification techniques do not require the unknown aircraft to knowingly respond to the weapons platform in order to be identified. These techniques include dual mode recognition and multi-source integration, fusing information from several identification sources to reduce pilot workload and enhance situational awareness. In addition, several advanced techniques are being pursued in the laboratory for potential application in weapons platforms.

In FY 88, funding is requested to initiate full-scale development of the MK-XV IFF and continue research and development in advanced non-cooperative techniques.

GROUND LAUNCHED CRUISE MISSILE

To reverse a declining deterrent posture, the NATO Ministers unanimously agreed in December 1979 to pursue a dual-track decision--engaging the Soviet Union in arms control negotiations while proceeding with force modernization. This force modernization included 464 Ground Launched Cruise Missiles (GLCM) in five NATO countries and 108 Pershing II missiles in Germany. Both the GLCM and Pershing II initial operational capability dates were achieved in December 1983. GLCM's deep-strike capability improves the theater commander's flexibility by allowing dual-capable fighter aircraft to be used in the conventional role longer before committing them to nuclear roles. As a result of its mobility, low-altitude flight profile and small radar cross section, the GLCM possesses high pre-launch and enroute survivability while compounding the enemy's targeting and defense problems.

The deployment of GLCM in Europe continues as scheduled. Missiles are operational at RAF Greenham Common, United Kingdom; at Comiso Air Station, Sicily; at Florennes Air Base, Belgium; and temporarily at Hahn Air Base, West Germany. The missiles at Hahn will be permanently deployed to Wueschheim Air Station, West Germany. The activation at RAF Molesworth, United Kingdom, is ongoing. Also, United States and Dutch representatives are continuing beddown plans for Woensdrecht, Netherlands, following the Dutch Parliament's ratification of GLCM deployment. In FY 88 we are requesting funding to complete missile procurement, continue flight testing and provide spares, residual support equipment and technical data.

Operational construction is underway at all six GLCM locations, and the initial deployment is progressing satisfactorily. An issue of growing concern is adequate community support facilities for Air Force members and families assigned to GLCM installations. These installations are making do with interim libraries, youth centers, transient lodging facilities, commissaries and exchange outlets. Longer accompanied overseas tours are more difficult when the Air Force cannot provide the facilities to make standard length assignments in foreign locations livable. FY 88 funds are required for permanent construction to replace the interim facilities currently in use.

FORCE PROJECTION

Our geographic location in relation to Soviet strongholds places a premium on our ability to respond quickly to hostilities in Europe, the Middle East, the Far East, Africa and Central America. Soviet force-projection capabilities are improving rapidly in air and sea forces, multiplying the number of threats and levels of conflict possible against the US, our allies and friends. The Soviet surrogate international terrorist activities throughout the world further compounds the situation. A growing Soviet presence in the Third World challenges US influence and increases the opportunity for Soviet political coercion. The US must reverse the Third World perception that time and political momentum favor the Soviet Union.

The US deterrent strategy demands a force-projection capability adequate to respond to global challenges. The key to effective force projection is balance among airlift, sealift and prepositioning. Inherent in this strategy is the requirement to deploy, employ and sustain military fighting forces in a timely manner. Although sealift provides the greater part of US sustainment capability, there is no substitute for the speed and flexibility of Air Force airlift forces. Ultimately, the Soviet perception of our airlift capability may make the difference between successful deterrence of aggression and further Soviet expansionism or war.

Airlift and aerial refueling, the mobility components that provide the most rapid response and flexibility for our fighting forces, are the catalysts that quickly transform a combat unit in garrison into an effective fighting force in a forward battle area. The airlift mission is currently performed by a combination of general purpose, specialized and dedicated mission aircraft. These resources are operated by Active, Associate Reserve, Air National Guard and Air Force Reserve units based around the world. These units are augmented by the Civil Reserve Air Fleet (CRAF), composed of passenger, cargo and cargo-convertible aircraft, operated by US commercial airlines. CRAF assets can be called up in various stages during contingency or emergency situations.

In 1983 we began an effort to modernize and increase the capability of the airlift force structure. This included C-5B procurement, CRAF enhancement and CT-39 and C-140 replacement programs. We expanded the KC-10 program and continued development of the C-17. During FY 86, we completed three of these programs by procuring 80 C-21As and 40 C-12Fs to replace the CT-39 fleet, 11 C-20s to replace the C-140 fleet and the final 5 of 19 Boeing 747 cargo-convertible modifications in the CRAF Enhancement program. FY 87 is the last year of KC-10 and C-5B procurement.

Our airlift program for the future is primarily comprised of two parts. Near term, we will continue upgrading or modifying current systems. The cornerstone of our long-term program is the development and procurement of the C-17. Required wartime capability, high reliability and maintainability, and affordability were primary considerations used in the decision to buy the C-17. The excellent operational characteristics and low life-cycle cost of the C-17 make it the best choice to meet overall airlift requirements and provide a credible force-projection capability well into the 21st century.

The modernized tanker (KC-135R) and the procurement of the KC-10 are complementary programs increasing tanker and airlift capability. Re-engining the KC-135s while procuring 60 KC-10 aircraft provides a flexible tanker force, capable of meeting a wide range of competing strategic and general purpose mission requirements.

During FY 88, we will continue to strengthen our Special Operations Forces (SOF). Purchasing more MC-130H Combat Talon IIs and AC-130 gunships and converting our CH/HH-53s to a Pave Low III configuration are large steps toward the Air Force goal to provide effective airlift and selective firepower support. The primary long-term improvement to our SOF will be the addition of the fixed-wing, tilt-rotor CV-22A. This aircraft combines long-range capability with vertical take-off and landing capability and will greatly enhance and expand Air Force SOF responsiveness during crisis.

AIRLIFT MASTER PLAN

The USAF Airlift Master Plan (AMP) provides the basis for long-range planning to manage and employ the airlift assets needed to sustain our military strategy. The plan defines an airlift force structure, balancing validated requirements, operating costs, manpower, force stabilization and force modernization to achieve the most beneficial results. The AMP focuses on the need to meet airlift shortfalls and modernize airlift forces.

Our fiscally constrained, long-term goal is to attain 66 million ton-miles per day (MTM/D) of strategic airlift capacity, as recommended by the Congressionally Mandated Mobility Study. Today our strategic airlift forces, consisting of C-5s, C-141Bs, KC-10s and the CRAF, provide 44.3 MTM/D (funded) of airlift capability. By obtaining KC-10s and C-5Bs and enhancing the CRAF, we have addressed our critical near-term need for additional airlift. By adding C-17s to our airlift inventory, we provide the necessary additional strategic airlift capability to build toward our 66-MTM/D goal and ensure a modern, capable airlift force for the late 1990s and beyond.

The most difficult mobility requirements to quantify are those for theater airlift. This includes movement of cargo and passengers from major theater air and seaports, shifts of prepositioned stock, and tactical requirements of the battlefield situation. The in-theater requirement for the insertion, repositioning and resupply of combat forces results from the uncertainty of wartime events. To quantify this requirement, the FY 85 Defense Authorization Bill directed an intratheater mobility study similar to the Congressionally Mandated Mobility Study. We are participating with the Joint Chiefs of Staff and the other Services in the OSD-led Worldwide Intratheater Mobility Study to define airlift requirements by theater. The study is currently underway, and the report should be complete in spring 1987.

The Airlift Total Force Plan (ATFP) is a natural extension of the AMP.

The ATFP allocates the recommended AMP force structure among Active and Reserve forces to limit active duty manpower requirements, modernize the fleet and provide a time-phased acquisition and transfer strategy. This plan synthesizes numerous national airlift issues, focusing on congressional guidance to integrate and modernize the Air Reserve Forces. By the year 2000, the Air Reserve Forces will own and operate 40 C-5s, 80 C-141s, 48 C-17s, 152 C-130s and will provide approximately half the total strategic airlift aircrews. The ATFP maximizes wartime capability during the transition of assets from the Active to the Air Reserve Forces while providing sufficient peacetime capability.

AIRLIFT ASSETS

C-5. To increase our strategic outsize and oversize capability by 6.6 MTM/D, we acquired 50 C-5Bs. The C-5B is an updated C-5A with upgraded engineering changes including a 30,000 hour wing, GE TF39-1C engines, improved avionics and the use of more durable, corrosion-resistant alloys. The C-5B program is being executed under a firm, fixed-price contract awarded in December 1982. As of February 1, 1987, 10 C-5Bs have been delivered to the Air Force. The FY 87 Appropriations Act provided funding for the purchase of the last 21 aircraft with final delivery to occur in early FY 89.

Although additional C-5Bs would increase our airlift capabilility, our overall airlift requirements would not be met, and the cost over a 30-year life cycle would be greater than meeting the 66-MTM/D goal with the C-17. Over 15 years of operational experience and testing have defined the C-5's capabilities and limitations. The C-5 is operationally limited to the strategic (main base to main base) role and cannot operate in the theater (forward airfield) environment without adequate runway length and width, taxiways, ramps, and the obstruction clearance needed to support safe and routine operations.

C-17. The C-17 is the key to our long-term program to reduce strategic and theater airlift shortfalls, especially in the area of intratheater delivery of outsize Army equipment. The C-17 program provides the final increment of the increase in strategic airlift capability recommended by the Congressionally Mandated Mobility Study; provides the theater commander with outsize cargo capability; offsets the capability lost as older aircraft begin leaving the inventory in the 1990s; and reduces airfield congestion with direct delivery and efficient design characteristics. The air-refuelable C-17 will be able to carry all classes of cargo over intercontinental distances and operate directly into small, austere airfields typical of contingency areas around the world. Direct delivery reduces the need for offloading at main operating bases and obviates the requirement for follow-on transport to forward bases in the combat area. The C-17 will be capable of all delivery modes: airland, airdrop and low-altitude parachute extraction system (including outsize).

The C-17 will satisfy the overall airlift requirement at a lower life-cycle cost than any other alternative providing equivalent capability. Flexibility and life-cycle cost advantages make it a vital element of our future airlift force. Increased reliability, maintainability, better operational utility and low manpower requirements for maintenance are some of the benefits provided by this versatile aircraft. We plan to purchase 210 C-17s from FY 88 through FY 98 and deploy the aircraft in Active, Associate Reserve, Guard and Reserve units based in the CONUS. Initial operational capability will be achieved in FY 92. Our FY 88 budget request funds the procurement of the first two C-17s.

C-12F/C-21A. The Operational Support Airlift (OSA) fleet, composed of the C-21A and C-12F aircraft, has a dual mission. Its wartime mission is the time-sensitive movement of passengers and cargo throughout the continental United States and combat theaters. The peacetime mission, based on wartime readiness, is to provide low-cost flight experience for recent pilot training graduates. Peacetime OSA also provides essential training for other operational personnel and quick reaction logistics support.

The C-12F/C-21A program was initiated to replace the aging and costly CT-39 fleet. Leasing proved far less expensive than continued CT-39 operations; therefore, the Air Force used existing O&M funds to replace the CT-39s with leased C-12F and C-21A aircraft. On September 19, 1983, the Air Force awarded 5-year lease contracts to Beech Aircraft Corporation for 40 C-12F aircraft (Beech King Air B200s) and to Gates Learjet Corporation for 80 C-21A aircraft (Lear 35As), with options to extend either or both leases for three additional years or to buy the aircraft, at fair market value, at the 5- or 8-year points.

During FY 86, Beech Aircraft and Gates Learjet Corporation each submitted unsolicited proposals to the Air Force offering an option to purchase the aircraft early; i.e., prior to the 5-year point. We investigated the possibility of early procurement and decided to buy early, if we could gain congressional approval and if the aircraft could be purchased for less than the cost of leasing and then buying the aircraft beginning in FY 89, five years from the first aircraft deliveries (March 1984).

The wholesale fair market value of the C-12F was $1.45 million per aircraft and the C-21A was $2.44 million per aircraft. Subsequent negotiations with Beech Aircraft and Gates Learjet resulted in unit prices of $1.3 million and $2.25 million, respectively; therefore, the Air Force submitted reprogramming requests to Congress, in accordance with language in the FY 86 Urgent Supplemental Appropriations Bill. Congress approved the reprogramming actions in late September 1986, and on September 30th, the Air Force bought all 120 aircraft using FY 84 funds.

In present value terms the Air Force saved $34.4 million (15.8 percent) over the lease-buy contract by buying the C-21As early and $4.9 million (8.6 percent) by buying the C-12Fs early. The FY 88 budget request continues the support of C-12F and C-21A aircraft through logistics support contracts with Beech Aircraft and Gates Learjet.

Presidential Support Aircraft. The two existing Air Force One aircraft are 14 and 24 years old and are becoming increasingly difficult to maintain and support. The range, endurance and communications capabilities of the present aircraft are less than required and limit contingency plans and day-to-day peacetime operations. Finally, the limited size of the current aircraft precludes adding new capabilities, such as an emergency medical treatment facility and improved rest and work accommodations for the President, his staff and guests.

The Air Force specified the replacement aircraft be new FAA-certified, commercial, wide-body aircraft with more than two engines, American manufactured and of a type aircraft in commercial airline service for a minimum of two years. The aircraft must be electromagnetic-pulse hardened to ensure communications connectivity with other command and control nodes. Additionally, the aircraft must have self-contained stairs, dual auxiliary power units and an unrefueled range of at least 6000 NM.

The Air Force conducted a competitive source selection between the McDonnell Douglas DC-10 and the Boeing 747 to determine which aircraft could best satisfy requirements for the Presidential aircraft. On June 5, 1986, the Secretary of the Air Force selected the B-747 as the winner of the competition, and in July 1986, the Air Force awarded acquisition and contractor logistics support contracts to the Boeing Military Airplane Company for two B-747-200B aircraft. The first aircraft is scheduled for delivery in November 1988 and the second in May 1989.

The FY 88 budget request includes $12 million in development funding for the new Air Force One, the minimum required for Boeing to continue performance in accordance with federal acquisition regulations.

Civil Reserve Air Fleet. The Civil Reserve Air Fleet (CRAF) is a group of US civil aircraft committed to augment the Military Airlift Command (MAC) in wartime. Those air carriers participating in the CRAF voluntarily commit to provide aircraft, crews, support personnel and facilities to MAC under specific emergency conditions. The CRAF is designed to mobilize the nation's commercial carriers to meet DOD requirements.

CRAF aircraft make a valuable contribution to the nation's airlift capability. Nearly all wartime troop movement and 25 percent of cargo movement would be accomplished by these aircraft. They can lift all bulk and most oversize cargo. However, owing to structural limitations (size and floor strength), they are unable to carry outsize cargo in a combat ready configuration.

The Air Force relies heavily on the CRAF to meet wartime requirements. As an incentive, we will continue to award MAC peacetime airlift contracts for international and domestic requirements to airlines participating in the CRAF.

Military Airlift Command C^2 Support. With the increased importance of rapid deployment, the airlift mission has grown in scope. The C^2 systems to manage airlift assets must be responsive to varied taskings on a global basis. In 1980 the Air Force began pursuing an upgrade to improve the effectiveness of MAC's C^2 capabilities. MAC is designing an integrated system consisting of the procedures, communications, information processing equipment, personnel and facilities required to receive, process, display and transmit essential information.

MAC's present C^2 system is essentially unchanged from that of the 1950s. It relies on unsecure telephone lines and manual operations planning and execution. Top to bottom improvements are needed to meet current requirements. To ensure an integrated approach and overcome specific deficiencies, solution elements, including HF radio sets, UHF SATCOM radios, secure facsimiles, COMSEC, automatic data processing equipment, and deployable shelters, are being developed.

The majority of the upgrades will be purchased and fielded in FY 87-92, integrally phasing development and acquisition. Owing to long lead times, COMSEC has been programmed several years ahead of the hardware it supports. Also, equipment to be used in shelters is being bought before the shelter so that interface requirements will be known.

MAC C^2 Support is a Total Force program and includes the Air Reserve Force components supporting the airlift mobility mission.

AERIAL REFUELING OVERVIEW

The capability to aerial refuel our combat and combat support aircraft contributes more flexibility to air power, by extending our presence in the combat area, increasing the range of our forces (allowing us to bypass troubled areas where overflight rights would be denied) and reducing our vulnerability to attack.

Real world constraints and planning factors overtax our tanker capability in combined Single Integrated Operational Plan (SIOP) and conventional scenarios. Aerial refueling capability must be increased to address global response capability, force modernization and the ability to support an extended conflict.

Two Air Force programs will help reduce our tanker shortfall: the KC-10 Extender Program and the KC-135R Modernization Program. FY 87 marked the final year of KC-10 procurement funding, and the last of our 60 KC-10s will be delivered in July 1988. Neither the KC-135R nor the KC-10 alone can solve our present tanker deficiencies. KC-10s provide a much needed long-range capability for conventional deployment and redeployments, and the KC-135R provides the capability to meet SIOP and employment requirements. In sum, the proper force mix of KC-10 and KC-135R aircraft improves long- and mid-range offload capabilities and provides increased basing flexibility.

KC-135. The KC-135 remains the nation's primary strategic aerial refueling tanker. The "Stratotanker" extends the mission duration and warfighting effectiveness of USAF combat aircraft by providing global inflight refueling during deployment, employment and redeployment operations. Moreover, the KC-135 is an integral part of the SIOP, providing mission-critical fuel to the strategic bomber force. The KC-135R modernization program provides a 50-percent increase in fuel available for transfer compared to the basic KC-135A, due largely to the new F108 high by-pass turbofan engines. The modernization program also updates 25 aircraft systems, including the landing gear, electrical system and auxilary power units. This total modernization provides a highly reliable and maintainable aircraft that will help us meet the nation's refueling requirements well beyond the year 2000.

Through FY 87 we have funded 195 KC-135R modernizations. The first Strategic Air Command units to complete conversion were McConnell AFB, Kansas; Ellsworth AFB, South Dakota; and Robins AFB, Georgia. The conversions have been completed with superb results. This Air Force program funds a total of 375 KC-135R conversions through FY 92 with plans to retrofit the entire fleet of 594 aircraft. FY 88 funds will procure 36 modification kits, bringing the total to 231.

Refueling Requirements. The Air Force currently operates 594 KC-135 tanker aircraft, all required to support the bomber and reconnaissance forces committed to the general nuclear war plan, the SIOP. Inflight refueling also provides increased force effectiveness in other scenarios, and these same tanker aircraft are dual-tasked in a large number of contingency plans to support deployment and subsequent employment of general purpose forces. Substantially greater aerial refueling capability is needed to support our warfighting plans than is available from the present KC-135 and planned KC-10 forces.

SPECIAL OPERATIONS FORCES

The United States Special Operations Forces (SOF) provide unique capabilities to respond to a wide range of crises in a flexible manner, ensuring varied and unique options when use of large-scale conventional forces would be premature, inappropriate or unnecessarily provocative. Air Force SOF provide airlift and selective firepower support for Army Special Forces, Army Rangers and Naval Special Warfare Units. In support of national objectives, US SOF conduct or support foreign internal defense, unconventional warfare, direct action/strike missions, psychological operations, counterterrorist operations and contingency missions. The success of most SOF missions depends on surprise and special equipment. Because of this, Air Force SOF includes specially trained personnel equipped to conduct unusual, short-notice, sensitive and low-visibility operations.

Although many types of aerospace forces have application in special operations, the Air Force organizes, trains and equips specific units to conduct special operations as their primary mission. These core units are equipped with MC-130, AC-130, EC-130, MH-53, CH/HH-3E and UH-1N aircraft. These forces are prepared to participate in large- and small-scale operations and have the flexibility to conduct operations throughout the spectrum of conflict.

The MC-130H Combat Talon II and AC-130U gunship programs were developed to provide additional capability and to reduce the shortfalls in the existing MC-130E and AC-130 A/H fleets. These aircraft will have physical and performance characteristics similar to a basic C-130H, with extended range resulting from aerial refueling. In addition, these aircraft will be uniquely equipped with integrated avionics system and defensive electronic suites to provide night, adverse weather capability in hostile or defended areas.

AC-130U. The Air Force will buy 12 C-130H airframes from Lockheed, Georgia, for conversion to AC-130 gunships. An avionics and weapons systems integration contract will be completed, after evaluating responses to a 1986 request for proposal. The FY 88 budget request includes procurement funds for five AC-130U gunships.

MC-130H. The MC-130H Combat Talon II is a night, adverse-weather, low-level transport dedicated to the SOF mission. Used primarily for infiltration, exfiltration and resupply of Army Special Forces and Navy Seals, the requirement for this aircraft continues to increase. We plan a total buy of 24 aircraft to augment our current limited force. The FY 88 budget request procures seven MC-130Hs.

CV-22A. The V-22 Osprey Program is an initiative to develop a common aircraft to satisfy various mission requirements of all four Services. The CV-22A will provide the Air Force with an advanced technology, fixed-wing, tilt-rotor aircraft with long-range, vertical-lift, night, adverse-weather capabilities to conduct SOF missions. The team of Bell Helicopter and Boeing Vertol has started full-scale development leading to first flight in June 1988.

The Navy is the executive agent for the V-22 program, and the Marines are providing the program manager. Funds for the development of the air vehicle and the engine have been provided to the Navy with total cost estimated at $2.4B in then-year dollars. The Air Force is funding special operations systems development/testing and in FY 92 will procure the first six of a minimum of 55 CV-22A aircraft.

Rotary-Wing SOF Requirements. In order to save money and reduce inter-Service duplication, the Air Force and Army agreed to transfer responsibility for rotary-wing SOF air support to the Army. Owing to congressional concerns, a date for full implementation of the Air Force/Army Memorandum of Agreement, Initiative 17, has not been determined. In the interim, the Air Force will continue revitalizing its SOF rotary-wing assets. We will retain the rotary-wing SOF mission until such time as it is clear that the Army has the capability to assume the entire mission. To do this, we are modifying 33 H-53 aircraft to the MH-53J PAVE LOW III enhanced configuration, giving the Air Force a total of 41 PAVE LOW aircraft, all operational by the first quarter of FY 90.

SOF Command, Control and Communications Upgrade. The SOF C^3 Upgrade Program (part of the MAC C^2 Upgrade Program) funds equipment and manpower to provide the SOF with an initial organic C^3 capability providing communications equipment, automated data processing support and transportable facilities. It will allow secure data and voice communications from airborne and ground assets over various communications media and provide the capability to perform intelligence processing, status monitoring, mission planning and execution.

LOW-INTENSITY CONFLICT

Under the protective umbrella of a credible conventional and nuclear war-fighting capability, the Soviet Union and its surrogates have chosen to pursue many strategic objectives through low-intensity conflict (LIC). LIC is a broad term used to characterize a limited politico-military struggle to achieve political, social, economic or psychological objectives. It is often protracted and ranges from diplomatic, economic and psychological pressures to terrorism and insurgency. Low-intensity conflict is generally confined to a single geographic area and is characterized by the lack of direct confrontation between the superpowers.

Owing to the nature of LIC, military applications may often be subordinated to economic and political actions conducted by non-DOD agencies. The military's role in LIC often includes training and support to those countries trying to counter the effects of LIC on their political and economic institutions. Special Operations Forces (SOF) are the primary military forces employed to combat LIC due to their training and orientation toward small unit, low visibility and Third World operations. However, this should not imply that LIC and SOF are synonymous. Combatting LIC can include force requirements much broader than the application of SOF, as demonstrated in Grenada, where conventional airdrop and airland operations were provided by standard C-130s and C-141s.

Security assistance programs play a major role in LIC because they help freindly governments help themselves. The Air Force may be called upon to help a country improve its close air support capabilities. In the larger perspective, the Air Force may be required to use facets of its total conventional capability to ensure that countries have the necessary training, experience and equipment to stabilize LIC situations and bring about a climate for political and economic reform within the host country.

The recently established joint Army/Air Force Center for Low-Intensity Conflict at Langley Air Force Base will greatly increase our ability to deal with the LIC threat. Under its charter, the center will serve as the focal point to plan and program the integration of forces to combat LIC. The center is charged with researching the best use of our resources, including those capabilities designed specifically for special operations. The center has the necessary representation from across the Air Force and Army to exploit fully the Services' potential contributions in combatting LIC.

Short Take-off and Landing Intratheater Transport Aircraft. The Short Take-off and Landing Intratheater Transport Aircraft (C-STOL) program was implemented by the Air Force to ensure our future ability to appropriately respond to LIC worldwide. Experience shows operating into areas where surface access is limited is characteristic of LIC. The unstructured, undefinable, irregular, often guerrilla nature of LIC requires the fast, flexible response of airlift. Current assets cannot respond quickly enough to influence the outcome of an LIC engagement.

The C-STOL program will satisfy the requirement for an aircraft to enhance theater airlift capabilities. The aircraft will rapidly deliver troops and cargo to forward areas where only short runways or dirt strips are available. This military aircraft will be rugged, simple, maneuverable, smaller than the C-130, and will possess the versatility of a light utility transport with STOL capabilities.

The C-STOL System Program Office was established on September 1, 1986 to procure and field 10, new, off-the-shelf STOL aircraft. Procurement activities include full competition in late FY 87 and contract award in the beginning of FY 88. First aircraft delivery is scheduled during the last quarter of FY 88. Procurement of 10 aircraft and initial spares will cost approximately $150 million, split equally between FYs 88 and 89.

Air Force Role in Drug Interdiction. The Air Force has actively provided support on a non-interference basis to government agencies involved in drug interdiction. The Air Force is uniquely suited to provide assistance in C^2, surveillance and troop transport. The administration has emphasized the military role in countering drug smuggling, and Congress, through the Omnibus Drug Act, has provided additional funds for such operations. We will continue to look for new ways to increase the scope of Air Force support, while maintaining the combat readiness of our forces.

SPACE AND FUTURE TECHNOLOGIES

The US Air Force has been involved in space since 1958, and the term "aerospace" was coined in the early 1950s. In 1944 the first German V-2 rocket crossed the threshold of space and attacked London. Since then, space has become increasingly important as the environment best suited for performing missions in support of our security and defense objectives. The principal facets of those missions involve four major areas: tactical warning and attack assessment, navigation, communications, and surveillance.

OBJECTIVES IN SPACE

The Air Force is charged with organizing, training and equipping forces to use space to support our national security objectives and to deny the use of space for purposes harmful to the United States and its allies. The President established a National Space Strategy in 1984 containing several elements of guidance directly relevant to national security:

- Our country must be able to enter, transit and use space without interference. The loss of the Challenger was a national tragedy, and the grounding of our launch fleet seriously complicated our ability to carry on those activities in space vital to our national interests. However, a more robust space program, with greater versatility and flexibility, can result from lessons learned.

- We must pursue a long-term survivability enhancement program for those space systems judged critical to our national security. To that end, the Air Force development community has worked to reduce the vulnerablility of key spacecraft components to nuclear effects, incorporated more resistance to electronic interference, and planned and programmed on-orbit spares to ensure functional survivability. We've also buttressed our satellite control capability and plan to move the focal point for satellite control to the Air Force Space Command's most secure above-ground facility -- the Consolidated Space Operations Center (CSOC) at Falcon AFS near Colorado Springs.

- We need to continue development of an enduring integrated tactical warning/attack assessment system. A comprehensive architecture of near-earth (less than 3000 NM) and deep space warning systems is essential if we are to provide adequate deterrence against increasingly sophisticated Soviet systems. A number of current and planned programs serve this need. The Air Force is establishing a communications and processing facility at Offutt AFB, Nebraska to ensure continuous availability of tactical warning information to the National Command Authority and unified and specified commanders. We have received funding for upgrades of PAVE PAWS radars at Otis ANGB, Massachusetts; Beale AFB, California; and Robins AFB, Georgia. A radar system near Goodfellow AFB, Texas, will be on line in 1987. We will continue to address the need for standardized display data, upgraded sensors and processing centers.

- We will continue to support the SDI research program. The Air Force supports the goal of SDI and joins in the commitment to explore technologies that could reduce our reliance on nuclear weapons.

SOVIET SPACE THREAT

All the evidence argues that the basic Soviet objective in space remains the attainment of military superiority. Because of their orbital properties in space, space-based systems are ideally suited for performing such functions as communications relay, aids to navigation, surveillance, warning, meteorological observation and geodesy, the military forces of the United States and the Soviet Union have employed satellites in those roles over two decades. US spacecraft are designed to support our national policy of deterrence. The spacecraft of the Soviet Union may be designed for different purposes.

As early as 1965, the Soviets' Dictionary of Basic Military Terms officially made reference to a mission they described as "antispace defense," defined as, "A component part of air defense. The main purpose of antispace defense is to destroy space systems used by the enemy for military purposes in their orbits. The principal means of antispace defense are special spacecraft and vehicles, which may be controlled either from the ground or by special crews."

The Soviets also defined "military space systems" as "systems used for military purposes in space, namely to carry nuclear weapons, to conduct reconnaissance, to organize radio-countermeasures, to effect communication and control, and to destroy space vehicles. Military space systems will include various types of artificial earth satellites and space ships, such as missile-armed satellite bombers, manned space bombers, etc."

Firmly grounded in this doctrine, by the late 1960s the Soviets developed and deployed a fractional orbiting bombardment system, an unmanned spacecraft that could be launched and complete a partial orbit with a nuclear weapon on board. After a fractional orbit it could be returned to earth on command and detonated.

The Soviets also developed and possess the world's only operational satellite interceptor system, a system emerging from their doctrinal requirement to be able to control the medium of space.

The Soviets possess the largest space logistics base and infrastructure in the world, including launch pads, numerous mission control sites and an entire fleet of Space Event Support Ships providing worldwide spacecraft tracking and recovery capability. This system allows them to sustain a vigorous launch rate of approximately 100 launches a year. Approximately 95 percent of Soviet space launches have military/scientific applications, with at least 70 percent having purely military missions. The Soviet space budget has been growing at the rate of more than 15 percent annually, exceeding the growth rate in their already massive overall military budget. The Soviets have had over 60 successful space launches since our Challenger accident, and Soviet cosmonauts have logged over 4200 man-days in space--three times as many as our own astronauts.

The Soviets admit to using manned spacecraft for "earth observation" and "experiments," but it is significant that radio communications between the cosmonauts and their ground controllers are sometimes scrambled to defeat efforts to determine precisely the cosmonauts' activities.

Two Soviet systems, for which no other country in the world has a corresponding capability, are RORSAT and EORSAT. RORSAT uses radar to locate naval vessels, while EORSAT detects electronic emissions emanating from ocean vessels, and both act cooperatively. Thus, any attempt by a ship to use electronic countermeasures against the radar satellite may only serve to allow the electronic satellite to detect the ship's position. There are no functions for the RORSAT-EORSAT constellation other than to allow the Soviets to economize their own military forces and to enhance the Soviet terrestrial capability to locate and target opposing naval forces. These systems were designed and would be employed in an attempt to diminish the US naval advantage in carrier battle groups.

The Soviet capital is defended by the world's only operational anti-ballistic missile system. Additionally, the Soviets employ over ten thousand people in their laser program, a program that would cost roughly $1 billion annually to duplicate in the United States. Several of their laser sites can interfere with our satellites in low-earth orbit. The Soviet version of a multiple layer "Strategic Defense Initiative" has been quietly under development for two decades, and elements of it have already been fielded.

The Soviets are also pressing ahead with a heavy-lift space launch vehicle capable of lifting payloads in excess of 110 tons, a weight more than two-thirds heavier than our shuttle; an aerospace plane; and a manned orbiter based on our own shuttle design with an anticipated launch in 1987-88, probably before our next shuttle launch. The potential military applications of these systems are legion. Taken together, already operational and future Soviet space capabilities are a cause for genuine concern.

SPACE ORGANIZATIONS

United States Space Command. The United States Space Command (USSPACECOM) was activated at Colorado Springs, Colorado, on September 23, 1985.— This command is composed of the Air Force and Naval Space Commands and the new Army Space Agency and supports unified and specified commands by means of space, air and ballistic missile defenses.

The three main functions assigned to USSPACECOM are space operations, integrated tactical warning and assessment, and planning for ballistic missile defense requirements. The staff consists of about 50 percent Air Force, 30 percent Navy/Marine Corps and 20 percent Army personnel. The force level of the command is programmed to reach about 10,000 positions. The command will operate 17 radar and 6 optical sensors around the world and make about 30,000 space observations every day. The pivotal importance of the new unified space command is that under war conditions it will ensure that all US space assets will be coordinated to support national objectives with other military forces.

As a result of the President's approved changes to the Unified Command Plan, operational command of US military space assets will be similar to that of tanks, ships and aircraft and will:

- Be directly responsible to the President, Secretary of Defense and Joint Chiefs of Staff.

- Provide positive, centralized control over space systems.

- Provide a joint operational focus for requirements and concepts of our evolving space systems.

Air Force Space Command. Established in September 1982 to consolidate Air Force space activities, Air Force Space Command (AFSPACECOM) provides a major component to USSPACECOM, both headquartered in Colorado Springs, Colorado. This new major command is responsible for operating assigned military space systems and organizes, trains, equips and administers forces in support of North American Aerospace Defense Command and USSPACECOM.

The increased recognition of the Soviet space threat, increased US resource commitment to space and recognition of the increasing dependence on space systems led the Air Force to create AFSPACECOM. Satellites provide strategic and tactical weather data to all military Services and the civilian community. Weather satellites are the primary means of acquiring data over remote and denied areas of the globe. Space communications also play a critical role in the mission accomplishment of military commanders worldwide. Two-thirds of the US long-range military communications now use satellite links. Satellites are also the primary means for timely warning of ballistic missile launches. Also, any arms control agreements would be virtually impossible to enforce without verification by satellite systems.

To best meet DOD needs, the Air Force is building the Consolidated Space Operations Center (CSOC) at Falcon AFS, Colorado. The CSOC will include facilities to provide:

- Improved survivability and security.

- Improved planning, preparation and control of space operations.

- Interoperability with the Satellite Test Center and the Johnson Space Center to complement those operations, ensure continuity and provide for expansion.

The CSOC is designed to be compatible with the existing Satellite Test Center at Onizuka AFS, California, and will provide tracking, telemetry and commanding services to the DOD Navstar Global Positioning System, Defense Support Program, Defense Satellite Communications System, Defense Meteorological Satellite Program and Milstar.

ASSURED ACCESS TO SPACE

The tragic loss of the Challenger and Titan launch failures dealt our nation's space program a major setback. Assured access to space is essential for a number of Air Force missions. Our objective is to have a combination of manned and unmanned systems to give us the best range of capabilities, balancing cost and risk. A high priority is to reduce the cost of access to space. We must build a stronger, more balanced, more flexible, yet less expensive space launch capability to make sure the unique advantages of space are available to commanders on the ground.

In particular we must never again put ourselves in the position of being totally dependent upon a single space launch system. Fortunately, Congress gave approval two years ago to proceed with development of Titan IV (formerly called the Complementary Expendable Launch Vehicle). We are, therefore, two years closer to recovery of a complete launch capability than we would have been. In addition, the National Aeronautics and Space Agency (NASA) will commence construction of a fourth orbiter to replace Challenger next year.

The Air Force has developed a plan to help us recover and move into the future, confident that our space program will be supported by a robust, redundant, flexible system of manned and unmanned launchers. The principal elements of that plan are:

- We have agreed with NASA to proceed with a program focusing space shuttle launches from Kennedy Space Center through 1992; east coast launches offer certain advantages of payload capability, and Kennedy Space Center permits quick turnaround between missions. That approach best serves the nation's interests and permits us to fly more of the backlog of satellites and shuttle payloads than if we kept one shuttle at the Vandenberg AFB launch site during that time.

- We have chosen to place the launch facility at Vandenberg's Space Launch Complex Six in a "minimum facility caretaker status." This will minimize the near-term expenditure and will facilitate the reactivation of the complex when the requirements and shuttle capabilities dictate. Meanwhile, the Air Force is considering alternative missions for the Vandenberg Launch Facility.

- We will bridge the gap for defense missions using Expendable Launch Vehicles (ELVs) from Vandenberg and Cape Canaveral.

SPACE BOOSTERS

The DOD family of space boosters (Titan, Atlas, Thor) was developed to provide a versatile capability for meeting national launch requirements. This family of ELVs includes decommissioned ballistic missiles upgraded for space launch, as well as boosters designed solely for the space mission. In the wake of the shuttle accident, and to prevent a launch shortfall in the future, the DOD will rely on a mixed fleet launch capability, as directed by the President in the National Security Launch Strategy. The Space Boosters Program provides for development, procurement and launch of DOD ELVs, including Titan IV and the Titan 34D at Cape Canaveral AFS, Florida, and Titan IV, Titan 34D, Titan II and Atlas E at Vandenberg AFB. The Air Force recently awarded a contract to purchase a new Medium Launch Vehicle (MLV) to launch Navstar GPS satellites. We will procure 7 of the MLVs, called the Delta II, in FY 87 and have the option to buy up to 13 more in FY 88 and FY 89. Procurement of 23 Titan IVs, modification of at least 16 Titan IIs, and a competition for a minimum of 12 MLVs are ongoing.

To meet critical launch needs, additional funding to this program was provided in the FY 86 Urgent Supplemental, adding $94 million and $142 million respectively to the FY 86 and FY 87 research and development appropriation and $254.7 million and $424 million to the missile procurement appropriation. Program authorizations in FY 86, 87 and 88 include integration of DOD payloads on ELVs, development of the MLV and increased production and launch of the Titan IV.

Our current inventory of launch vehicles includes 33 ELVs comprised of Titan IIIs (7), Atlas (14), Delta (NASA-2) and Scout (10) boosters. The nation must rely on these assets to meet our near-term launch requirements. The first new launch vehicles will be available in 1988.

All existing ELVs already have payloads assigned and cannot be readily remanifested. Congressional approval of the Titan IV in FY 85 and the Titan II conversions in FY 86 allowed us to begin work on these programs. Our scheduled initial launch capability dates are April 1988 for Titan II, October 1988 for the Titan IV, and no later than January 1989 for the MLV.

To implement a mixed fleet launch strategy, additional ELVs are required. In the Urgent Supplemental for the Space Launch Recovery Program, Congress approved and funded 13 more Titan IVs and the first four MLVs. Our plans include launching MLVs at a rate of four per year (to meet requirements for launch of Navstar GPS satellites) and additional Titan II conversions to meet the launch needs of small satellites.

Production of the first Titan IV and Titan II boosters cannot be accelerated. However, the follow-on production rates have been accelerated for Titan IV. Supplemental funding included Titan IV production and launch rate enhancements. Titan II launch requirements were largely unaffected by the shuttle problem, since these payloads were never scheduled for shuttle launches.

The DOD FY 87 Supplemental Request includes funding for a Heavy-lift Launch Vehicle (HLV). The Air Force supports the need to begin a technology and development effort for a low-cost HLV capable of boosting payloads of 100,000 to 200,000 pounds. Such a capability would primarily be required to launch elements of a ballistic missile defense system envisioned under SDI. In addition, the HLV will support the need to reduce launch costs, enhance assured access to space for critical national security payloads and alleviate current and future payload design weight constraints.

SPACE SHUTTLE OPERATIONS

NASA is responsible for the development, operation and maintenance of the shuttle, the launch facility at Kennedy Space Center, the mission control center at Johnson Space Center, and other shuttle ground support elements at the Marshall and Goddard Space Flight Centers and Edwards AFB. The Air Force is the executive agent for DOD participation in the shuttle program and is responsible for development, acquisition, operation and maintenance of the attendant launch and support facilities.

Our Space Launch Recovery Program emphasizes a mixed-fleet launch capability. The plan also includes a continued commitment to the shuttle, one element of our recovery program. Acquisition of additional ELVs to augment the shuttle and the redesign of critical payloads for dual compatibility (capable of launch from either the shuttle or an ELV) will complement shuttle capabilities. If the shuttle standdown increases or shuttle performance decreases, we will need to consider modification of the recovery plan by extending and increasing the ELV programs.

In October 1986 DOD and NASA developed a shuttle manifest that meets both agencies' requirements to the extent possible. However, with the extended shuttle standdown, DOD and NASA critical missions will take priority over commercial users when missions resume. The October 1986 manifest gives DOD priority over a considerable number of NASA and commercial user missions. The DOD flight percentage is highest in 1988-90 and begins to decrease in 1991.

As a result of the lessons learned from the Challenger accident, selected critical payloads are being designed or modified to be dual compatible. Currently, Navstar GPS, Defense Support Program and Defense Satellite Communication Systems satellites are or planned to be dual compatible. The recent decision to delete Centaur as a shuttle upper stage forced a reexamination of the Milstar Program. Milstar is currently manifested on the Titan IV only.

Vandenberg Launch Site (VLS). We met the tremendous technical and management challenge to complete VLS and reach an Initial Operational Capability in October 1985. As a result of the Challenger accident, we announced in July 1986 that VLS would phase into "operational caretaker" status and reactivate at a later date for a possible launch in 1992. Since July we have been looking for ways to continue to use the VLS effectively. For example, we are working with NASA to determine if the shuttle complex at Vandenberg can be used to support the existing shuttle fleet or a fifth orbiter if one is built. In the interim, we have chosen to place the VLS complex in a "minimum facility caretaker" status, minimizing the near-term expenditure and facilitating reactivation of the complex.

SPACE-BASED SYSTEMS

Our space-based systems perform vital tasks that cannot be accomplished as well or as economically in any other medium. The tasks include surveillance missions (such as missile warning, meteorology, geodesy, environmental monitoring and treaty compliance verification), communications missions and navigation support. Many of these functions serve both commercial and military users. Over 70 percent of the world's transoceanic telecommunications traffic is handled by satellites, including most television. Two dozen nations have spacecraft, and six nations have space launch capability. Reliance on space-based systems is heavy and increasing. For more than 25 of its 39 years, the Air Force has managed and operated a growing fleet of space-based systems in support of national security objectives.

Communication Satellites. The Air Force Satellite Communications (AFSATCOM) System is one of our primary means for C^2 of our strategic forces. AFSATCOM consists of aircraft terminals, ground terminals and communications packages on several satellites. AFSATCOM is scheduled to be phased out in the mid-1990s.

In 1983 we began full-scale development of Milstar, the next generation of communication satellites, to provide improved, more survivable and highly jam-resistant communications in the extremely high frequency range. The Milstar Program is a joint Service effort to develop and acquire Milstar satellites, mission control segment hardware for a variety of platforms and terminals to meet the needs of operational users. The Air Force has total system development responsibility through the Joint Milstar Program Office that develops and acquires the space and mission control segments.

The deterrence of nuclear conflict requires that a potential aggressor perceives that any attack will result in unacceptable retaliation. Communications among our tactical warning sensors, command authorities and nuclear forces are mandatory for executing a retaliatory strike. The ability to communicate from our warning sensors and to our nuclear forces, in spite of enemy attempts to disrupt those communications, is a vital element of deterrence. In the event deterrence fails, survivable C^3 is necessary to verify the attack, estimate its size and determine its intent. Direct communication between the National Command Authorities and tactical warning systems provides additional time to decide on a counteraction and reduces the chance of catastrophic error. Our FY 88 budget includes $5.95B for the urgently needed Milstar Program to meet this requirement.

The Defense Satellite Communications System (DSCS) is an evolutionary DOD system providing Super High-Frequency satellite communications for secure voice and high data rate transmissions. DSCS provides unique and vital communications for worldwide military command and control, crisis management and presidential and diplomatic traffic.

DSCS III, the latest DSCS satellite design, provides added flexibility through electromagnetic pulse hardening and increased jam-resistance. DSCS III supports strategic forces by providing a UHF/SHF capability for emergency action message dissemination and force execution through an AFSATCOM Single Channel Transponder. The fixed-price, multi-year contract we awarded in 1985 for seven DSCS III satellites is on track and will save more than $140 million compared to annual procurements.

Navigation. The Navstar GPS is a space-based, 18-satellite, radio navigation system designed to provide military users with worldwide, all-weather, three-dimensional position, velocity and precise time. GPS will be accurate within 16 meters' distance, one-tenth of a meter per second velocity, and one-tenth of a microsecond time. GPS provides a common navigation grid for land, air and sea units for coordinated operations. It also dramatically improves our mapping capability, the probability of target acquisition, low-level ingress/egress, flexible routing and weapons-delivery accuracy. These features, along with a capability for highly accurate passive operations, enhance the force effectiveness and survivability of many US weapons. A degraded accuracy mode will also be provided for worldwide civil use.

The firm, fixed-price multi-year contract for 28 GPS satellites including R&D satellites, awarded in May 1983, is on schedule. Launches will begin in FY 89, leading to a 24-hour per day worldwide GPS capability in 1991, depending on shuttle and MLV availability as now planned.

Meteorology. The Defense Meteorological Satellite Program (DMSP), a joint Service program with the Air Force as executive agent, is DOD's most important source of global weather data. Since its inception, DMSP has expanded to provide support to additional strategic and tactical operational users.

The purpose of DMSP is to provide an enduring and survivable capability, through all levels of conflict, consistent with the survivabilty of the supported forces. Its mission is to collect and disseminate global visible and infrared cloud data and other meteorological, oceanographic and solar-geophysical data. Timely data are supplied to Air Force Global Weather Central, the Navy Fleet Numerical Oceanography Center and deployed tactical receiving terminals worldwide.

The first of the current Block 5D-2 satellites was launched in December 1982. The increased size allows for increased redundancy. The satellites have a mean mission duration of 25-42 months instead of the 18 months of the Block 5D-1, and are launched on refurbished Atlas Es rather than refurbished Thors. We will continue to use the Atlas Es through FY 89, when DMSP will begin use of refurbished Titan IIs through the 1990s.

The multi-year procurement (MYP) contracts were negotiated in September 1983 within the appropriated amount, $245.6 million for four spacecraft and associated imaging sensors. This represents a savings of $58.2 million over an annual buy. The contracts are following their planned schedule and cost estimates. In FY 88, the Air Force will request approval for two similar MYP contracts for the last five Block 5D-3 spacecraft and their associated imaging sensors at a savings of over $90 million (17 percent), or effectively five satellites for the price of four.

Space System Survivability. US military forces are increasingly dependent on space-based systems. The Soviets recognize the value of space systems support to US forces and are developing several means, including an ASAT, to deny our use of space assets. Therefore, system designers and operators must consider survivability an important characteristic, striving to make our satellites as survivable as the forces they support. We must protect our satellites against ground, air and space threats--conventional, nuclear and electromagnetic.

A single survivability technique rarely counters all the various threats to a satellite system. Typically, the vulnerabilities of each satellite system must be individually identified and an appropriate set of survivability measures selected. Passive measures include careful satellite positioning or satellite hardening. Active countermeasures include reactive shields or shutters, decoys, maneuvering, shoot-back systems, redundant systems and jammers for use against threat system aiming and tracking components. Damaged systems can be replenished with on-orbit spares or replacement launches. In the future, on-orbit repair may also be an option.

Survivability features are not expensive when compared to the cost of satellite replacement or vital mission loss. Today, some operational satellite systems employ radiation hardening, on-orbit sparing, anti-jam communications and attack detection sensors to increase survivability. New satellites will employ the present features plus laser hardening, distributed satellite constellations, attack-warning sensors, autonomous switching of redundant onboard equipment and attack-avoidance maneuvering.

To ensure our critical space assets are available when we need them, we must incorporate survivability into the design. The Air Force is requesting $3.3 million in FY 88 for this purpose.

FUTURE TECHNOLOGIES

To meet the ever increasing Soviet challenge, the Air Force is pursuing a wide variety of high payoff programs in both the Technology Base and Advanced Technology Development. These Science and Technology programs balance revolutionary and evolutionary technologies while recognizing the need for system supportability and affordability. Described below are a number of these programs which contribute to our war fighting capability and technological superiority:

National Aerospace Plane. The National Aerospace Plane (NASP) will demonstrate a vehicle which can operate both as an airplane at hypersonic speeds or as a space vehicle having the capability to accelerate directly (single stage) to orbit. The NASP is envisioned to be a hydrogen fueled, horizontal takeoff and landing vehicle capable of operating from standard runways. The NASP will have major operational utility for military, civil and commercial applications.

The three-phase NASP program capitalizes on past hypersonic research conducted by the Services, DARPA and NASA to demonstrate a research or X-vehicle. Phase I of the program began in 1982 and continued through 1985 under DARPA's Copper Canyon Program. The NASP was initiated with Phase II, Technology Development and Application Studies. These will pursue the technologies to build actual engine modules and design a vehicle capable of operating in the desired regimes. Based on an evaluation of Phase II, a decision will be made whether to fabricate and flight demonstrate the follow-on experimental vehicle as Phase III.

Advanced Aerodynamics. There are several important programs in this area. Among these are the Short Takeoff and Landing Maneuver Technology Demonstrator (STOL/MTD), the Boost Glide Vehicle (BGV), and the X-29 Forward Swept Wing (FSW) Demonstrator.

The STOL/MTD integrates flight and propulsion controls with avionics and rectangular thrust vectoring nozzles. This combination of technologies will prove that it is possible to build a STOL capability into an air superiority aircraft while improving its combat performance.

The BGV will flight validate hypersonic aerothermodynamics analytic capability and very high temperature (6000°F) structures on a missile boosted, unmanned, test vehicle. This will demonstrate the feasibility of both strategic and air defense hypersonic gliding weapons that will reduce booster size requirements by 50 percent.

The X-29 FSW Demonstrator will continue with the preparation of a second aircraft for a high angle-of-attack flight test program while the first aircraft will continue a series of flight tests to measure inflight performance and pressure distribution on aerodynamic surfaces as well as the flying qualities and military utility of the FSW and other advanced technologies incorporated in the X-29.

Advanced Microelectronics. Advancements in Very High Speed Integrated Circuits and gallium arsenide circuits will result in significant weight and size savings, improved reliability and maintainability, and orders of magnitude increases in performance.

Advanced Avionics Architectures. Advanced avionics architectures will allow the integration of many subsystem functions currently handled individually, such as weapons delivery, cockpit controls and displays, flight controls, communications, and navigation. This integration would allow higher mission reliability while decreasing aircrew workload.

Man/Machine Interface. Air Force operations will continue to be dominated by man. In all future weapons system developments, we must consider man's limitations and ensure that system design evolution includes technologies that complement and extend rather than attempt to duplicate human skills.

FORECAST II

In the summer of 1985, the Secretary and the Chief of Staff of the Air Force directed a comprehensive study to identify new technologies with exceptional promise for improving the Air Force's future warfighting capabilities. To make longer-term investment decisions, the Air Force periodically steps back to look for emerging technologies that might revolutionize capabilities. Project FORECAST II was conducted to provide operational Air Force commanders the "art of the possible" in future warfare.

The 70 initiatives identified by the Project Forecast II team could revolutionize the way the Air Force carries out its mission in the 21st century, ensuring continued technological supremacy over any potential adversary. The following highlight some of the technologies and the weapons systems concepts we support:

Propulsion and Power. We believe that it is possible to create an airbreathing propulsion system that would permit relatively inexpensive, efficient hypersonic flight operations that include horizontal takeoff, orbital insertion and horizontal landing. Such a system will allow the development of the NASP.

Vehicles, Structures and Materials. Anticipated advances in aerodynamics, flight control, structures and materials will result in more maneuverable aircraft, reduced dependence on large and fixed operating bases, less expensive and more reliable access to space, and the ability to place larger payloads in space.

We will capitalize on increased temperature capabilities of improved aluminum and titanium alloys, as well as lightweight metallic compounds, heat-resistant carbon/carbon materials and high-temperature, damage-tolerant ceramic composites. The Air Force will be able to go into space and return on demand as a result of improved understanding of hypersonic aerodynamics, particularly in the Mach 8 to Mach 25 regime.

Electronics and Optics. The FORECAST II team found four significant technologies to pursue. First, photonic devices should be substituted for electronic devices wherever feasible to defeat electromagnetic pulse, radiation and electronic warfare threats. Second, the Air Force needs to accelerate research of nonlinear optics. The third technology recommended for further development is fail-soft, fault-tolerant electronics systems. The fourth recommendation concerned the management of very large, phased-array electronic sensors.

Photonics may allow the Air Force to build aircraft with "smart skins," outer skins containing embedded phased arrays to permit the aircraft to sense and communicate in optical and other frequency bands and in any direction from any aircraft attitude. Smart skin should also enhance stealth by eliminating pods and domes on aircraft. Fiber optics can be embedded in the aircraft skin to provide an almost unlimited number of paths for signals to control surface actuators, greatly enhancing the aircraft's survivability.

Systems Acquisition and Support. Currently, nearly one-third of our electronic equipment failures are actually false alarms or intermittent problems that cannot be duplicated during bench tests. Trying to repair equipment that may not be broken ties up a substantial portion of our scarce electronic repair resources. The key to eliminating this problem will be the widespread use of very high-speed integrated circuits and very large-scale integrated chips embedded with micromechanical environmental sensing devices. When an electronic alarm occurs, the chips will sense the environment (e.g., temperature or acceleration) at the time of the event, store the information, retest to determine whether the problem is permanent or transitory, and, if permanent, work around it so that the overall system continues to operate. Later, during routine maintenance, the chips will dump all their information pertaining to the event to help trace and correct the problem.

IMPLEMENTATION

In FY 88, at least 10 percent of the Air Force Science and Technology Program will be devoted explicitly to the Project FORECAST II initiatives. An additional 10 percent will be applied to the initiatives in each of the years FY 89-93.

The Air Force envisions a partnership with sister Services, the national laboratories, academia, our allies and industry to achieve Project FORECAST II's full potential in minimum time. The dollars required and the demand on our technical skills will be considerable, but the results of investments in Project Forecast II and other Air Force Science and Technology programs will significantly enhance our country's ability to retain its worldwide technological supremacy, one of the cornerstones of our national security.

READINESS AND SUSTAINABILITY

The nation's military forces must be able to reach full combat potential under demanding, time-constrained circumstances. Should deterrence fail, warning time could be so short that peacetime readiness would be the deciding factor in determining success.

The Air Force investment in force structure and modern weapon production can be translated into a warfighting capability only if readiness and sustainability programs are functioning well. Modern, ready forces form the basis of our capability to engage the enemy effectively at the onset of combat. Success in combat requires a balance of sufficient force structure, modern equipment, well-trained personnel, effective repair facilities, sufficient spare parts, appropriate munitions and adequate fuel.

Our readiness goal is to provide sufficient resources to enable forces to perform those missions for which they were organized and trained. Readiness, however, is not a one-time investment; continued growth will be required to maintain and improve our readiness posture as our force structure and weaponry are modernized. Since our strategy is fundamentally defensive we must maintain our state of readiness at or above that of potential aggressors.

Sustainable forces, on the other hand, must have the staying power to fight during and beyond an initial period of combat. To do that, they depend on adequate spares, supplies, munitions and fuel to replace those resources consumed in battle. Adequate sustainability results only when the support infrastructure, war reserve materiel and the industrial base can support the requirements of battle.

To enable the commander to report accurately the level and condition of unit resources and the level of training, the Unit Status and Identity Report (combat ratings) has been revised, now retitled the Status of Resources and Training System. In addition, the Air Force Capability Assessment Program is under development to provide commanders at all levels with a better ability to highlight deficiencies and assess improvements in combat capability. This comprehensive system will integrate resource levels for fuels, munitions and supply parts with other factors such as aircrew, aircraft and maintenance status into a meaningful statement of unit, theater and total force capability. Initial operational capability for the system is March 1990.

The Air Force has made progress in improving the quality and realism of operational training. Programs such as Red Flag and Dissimilar Air Combat Training continue to increase the readiness of our operational aircrews. Major exercises and numerous deployments of Active, Guard and Reserve units to overseas operating bases have given operations and maintenance people realistic experience in the environment in which they might fight. Improved training, additional flying hours and increased experience have proven to be an investment resulting in a commendable safety record. Two of the best years for safety were 1985 and 1986. This improved flying safety avoided costly accidents, saving valuable lives and aircraft.

Building and maintaining readiness and sustainability is a continuing process, requiring a prudent balance among spending areas to achieve realistic goals. Although the pace of improvement will be slowed, our FY 88 funding will enable us to increase spare parts stocks and equipment inventories for our mobility and tactical forces, continue existing aircraft modifications, improve our inventory of modern munitions and train more effectively.

OPERATION AND MAINTENANCE

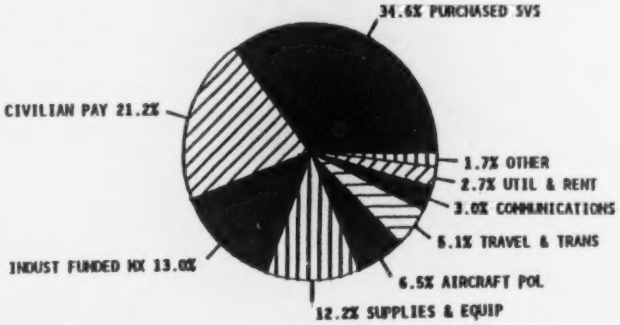
The Operation and Maintenance (O&M) funds buy the necessary war materiel for readiness and sustainability for the Air Force. This account represents 24 percent of the total FY 88 Air Force budget request or $24.3 billion. Approximately 85 percent of the O&M budget is fixed, funding our must-pay bills that cannot be reduced significantly in the short-term. They include communications systems, utilities, civilian pay, contract operations, upkeep of facilities and equipment, weapon system maintenance and support, flying hours and training. Therefore, any unprogrammed dollar reductions must be absorbed by programs directly affecting today's readiness and sustainability. Examples include: deployments, Air Force-sponsored exercises, and facility and equipment maintenance programs.

The O&M account is extremely sensitive to these unbudgeted program changes and taskings, because historically, O&M has had to absorb the cost of these taskings. When these unbudgeted expenditures are substantial, programmed growth in O&M is consumed. The result is a degradation of O&M accounts that support planned improvements in readiness and sustainability; therefore, any change in a program should carry a commensurate change in O&M funding.

A comparison of the O&M funds available to the Air Force in FY 87 with the FY 88 budgeted amounts shows a decrease in real buying power of over 2 percent. FY 87 O&M funding includes $1.8 billion in congressionally authorized refunds from DOD revolving funds, not reflected in the appropriated amount. FY 88 includes transfers of $437 million from the RDT&E appropriation, $65 million from the Army, $559 million for CHAMPUS and $345 million for the Federal Employees Retirement System. These funds are for requirements not previously included in the Air Force O&M account.

The Active force O&M still provides for Air Force readiness, sustainability and force structure support, but real reductions are expected to increase aircraft depot maintenance and facility maintenance backlogs. The following chart shows how O&M funds are divided among the activities in approximate percentages.

ACTIVE OPERATIONS & MAINTENANCE - FY 88
(BY COMMODITY)



Following are major areas of change in O&M from FY 87 to FY 88:

Space: Support of some programs will decrease due to changes in space shuttle operations and the space shuttle schedule. The Titan launch program, however, will cause a slight increase in the overall space-related budget. Future years will require further increased funds to support a viable expendable launch vehicle program and to resume shuttle operation.

Depot Maintenance: A decrease of $168 million increases the backlog in FY 88 by approximately 17 percent. This backlog is estimated to be $240 million at year end, making more than $1.1 billion worth of spare parts unavailable for force readiness.

Real Property Maintenance: After programmatic growth in FY 87, overall budget constraints have forced a decrease in funding for FY 88. This reduction is primarily associated with contract facility maintenance.

Backlog of Maintenance and Repair (BMAR): BMAR is estimated to increase from $706 million at the end of FY 87 to $771 million at the end of FY 88, $471 million above the $300 million congressional containment level. O&M's share of the FY 88 budget request does not permit sufficient resources to reduce BMAR and sufficiently support the approved force structure.

Civilian Personnel: Growth in civilian pay of $539 million is primarily the result of the new Federal Employee Retirement System, transfer of personnel into O&M from R&D (Acquisition and Command Support) and the transfer of personnel from the Army at the Joint Military Medical Command (JMMC) in San Antonio.

Force Structure: Funding increases for new B-1B and F-16 aircraft are offset with reductions in F-4s, T-33s and other aircraft.

Supply and Logistics Operations: Increases in Supply Depot and Inventory Control Point Operations and Logistics Support Activities of $84 million will improve logistics operations.

Flying Hour Related Funding: There is little change in total flying hours, although the mix by type of aircraft changes. Flying hour funding will decrease due to projected lower prices for fuel.

READINESS TRAINING

Well-trained people are essential to maintaining a combat advantage. The Air Force needs to train the aircrews and combat support personnel aggressively and realistically to make full use of the equipment and to sustain planned wartime sortie levels. We train as we would fight, jointly with the other Services and our allies, so we can operate effectively together on the battlefield.

Exercises. Exercises like Red Flag, Maple Flag and Cope Thunder provide training environments that give crews experience similar to actual combat missions. Support of tactical range improvements and full funding of training munitions is required to maintain this necessary standard.

Owing to this commitment to aggressive and realistic training, our crews are training on weapon ranges against simulated enemy defenses, practicing with allied airmen and flying in an environment similar to actual combat. As an example, Red Flag exercises provide peacetime experience in this realistic mock warfighting environment. The aircrews, including Guard and Reserve units, mobilize at their home base, deploy to Nellis AFB, Nevada, and stage operations out of airfields in that area.

Since the nation plans to fight as part of a combined, multi-Service force, joint exercises with the other Services are particularly valuable. Through the JCS exercise program, the Air Force gains experience under the joint wartime operational command arrangement.

Overseas Deployments. Our training programs include deploying Active, Guard and Reserve units to overseas locations to familiarize them with deployment bases, fly with allies in multi-national exercises and gain experience with local weather and terrain.

Flying Hour Program. We have consistently flown to within 1-2 percent of the Air Force Flying Hour Program, designed to meet aircrew training requirements for a responsive and ready force. Reduced flying hours in the mid-to-late 1970s seriously affected readiness across the Air Force, especially in the tactical air force (TAF). Starting in the early 1980s, we increased fighter flying hours each year to accomodate force structure growth (more aircraft and crews) and readiness growth (the amount of time we fly each crew member). Recent force structure and crew ratio reductions because of overall reduced defense spending are changing the picture.

The total FY 88 program, including the Air Reserve Force, is 3.45 million hours, down approximately 47,000 hours from FY 87. This represents a 1.4 percent reduction.

Insufficient funding in support of our Flying Hour Program would reduce readiness and force projection capability. In Strategic Forces, B-52 contingency training for conventional and maritime operations would be reduced. The KC-135 program, programmed at 85 percent of user requirements, would be further limited. Reductions would create more serious air refueling training shortfalls and lessen air refueling support for operational taskings in MAC, SAC and the TAF, necessary for the readiness of many Air Force weapon systems.

In the TAF, further reducing flying hours beyond that associated with a reduced force structure would decrease overall aircrew combat capability. Reductions would also widen the existing gap between the programmed hours and individual aircrew requirements. In airlift, cuts in the program would reduce training levels and force projection capability, affecting combat readiness.

Simulators and Training Devices. Combat aircrew proficiency is the ultimate force multiplier and requires realistic training in a total systems environment, including the weapon system and a family of training devices. Through the use of simulators and training devices, we complement highly valued flight time, enhance combat capability and improve safety.

Training devices are used to develop warfighting skills not easily practiced in the aircraft because of equipment and weather limitations and airspace restrictions. These ground-based devices train aircrews in complex systems and emergency procedures during flight conditions either not prudent to duplicate or difficult to achieve in the aircraft.

We currently have simulators for several weapon systems, including the F/RF-4, F-111, F-15, F-16 and A-10 fighter aircraft; C-5, C-141 and C-130 transports; KC-135 and KC-10 tankers; T-37 and T-38 trainers; B-52 bomber and E-3A Airborne Warning and Control System. Continual upgrading of simulators and training devices is required because of the introduction of new aircraft, technological improvements and logistical requirements.

In FY 87, the Air Force will field the first C-5/C-141 Aerial Refueling Part Task Trainer, a B-1B Cockpit Familiarization Trainer, and the first EF-111 Operational Flight Trainer (OFT). The KC-135 OFTs are being refurbished to convert the system from analog to digital technology. We also began development of a simulation capability for the Low Altitude Navigation and Targeting Infrared System for Night (LANTIRN). Development continues in FY 87 on the F-15E Dual-Role Fighter and the F-16C/D simulators.

The FY 88 budget request will continue procurement of the F-15, F-16, B-1B, KC-135 and LANTIRN simulator systems. Extensive analysis will begin for the Advanced Tactical Fighter and the C-17. In addition, development will continue to advance the simulation technologies necessary to complement the high-priced flight time, improving combat aircrew proficiency.

Range Improvement Program. The $141.3 million requested for the Range Improvement Program (RIP) directly affects the readiness posture of our forces through operations and improvements in the range complexes. The RIP provides the threat simulators and training resources critical to making exercises such as Red Flag, Maple Flag and Cope Thunder realistic. Equally important, RIP will ensure we have the modern facilities to adequately test our new developments under realistic conditions.

The RIP funding has been reduced every year. Future year increases will be required to reverse the schedule slips of the many separate projects involved in this program. These improvement requirements, if continually pushed into later budget years, will compete with requirements, such as SAC's Strategic Training Route Complex, for the necessary dollars to provide the most realistic training.

Training Munitions. The Training Munitions Program is a core element vital to the readiness of the Air Force. This program encompasses all peacetime munition expenditures (except missiles) by ground personnel and aircrews of Active and Air Reserve Forces. Crews have the opportunity to drop live ordnance, both at home ranges and during deployments. A deployment to a Red Flag exercise offers a unique opportunity to fly simulated combat missions in an extremely realistic setting. Extensive target complexes, dissimilar adversary aircraft and ground threat simulators not only enhance training quality, but provide an ideal environment for live weapons employment. In addition to the flying realism, aircrews and munitions specialists alike benefit from the exposure to actual combat weapons. Annually, the Air Force expends approximately 3000 live weapons during Red Flag. The Red Flag goal is to have each crew participate in a live ordnance mission during each deployment. Approximately 70 percent of our air-to-ground tactical aircrews have live munitions experience, but this varies greatly at squadron level depending on location and type aircraft. Recent cuts have reduced funding by 12 percent over FY 87. The FY 88 budget request for $206 million is essential to gain experience for new crews and maintain experience levels of combat ready crews in ordnance delivery.

LOGISTICS

Logistics consists of support equipment, spare parts, munitions, fuels, other supplies and the maintenance needed at the outbreak of hostilities to sustain combat forces until the industrial base can mobilize. The Air Force logistics objectives reflect preparedness for a prolonged conventional conflict and the need for enough war reserves to sustain combat and win. The three major components of logistics sustainability are aircraft replenishment spares, munitions and aviation fuel.

Combat sustainability for the Air Force has improved significantly over the past few years. Unfortunately, building stockpiles of war reserve consumables and spare parts is a slow and expensive process. Owing to long lead times for procurement (18-36 months for munitions, approximately 2 years for spare parts, and 1-2 years for petroleum, oil and lubricants, depending on tank construction), funding for sustainability does not show immediate results.

Aircraft Replenishment Spares. Aircraft replenishment spares are vital to peacetime readiness and wartime sustainability. Readiness spares support peacetime training for the combat mission, and sustainability spares provide the ability to perform the wartime mission.

Aircraft replenishment spares are a unique commodity because they are not readily available outside of service stockpiles even in the event of war. In a national emergency, additional aircraft spare parts do not exist. These parts generally cannot be available for two or more years because of procurement leadtimes. This long lead time is caused primarily by a relatively low defense industrial base, lack of trained and skilled people, reliance on scarce strategic materials, and the burden of supporting old and new aircraft technologies.

The FY 88 budget request reflects funds needed to support the Air Force peacetime flying program and provide wartime readiness stocks. This request continues to support Peacetime Operating Stocks (POS) as well as War Readiness Spares Kits/Base Level Self-Sufficiency Spares (WRSK/BLSS) for our new force structure. Owing to fiscal constraints, few dollars are available for WRSK/BLSS kit updates in existing units and no funds are available for Other War Reserve Materiel (OWRM) sustainability stocks. OWRM augments WRSK/BLSS and POS and sustains wartime operations until industrial production of assets meets total wartime requirements. This represents a decision to finance the Air Force Replenishment Spares account at approximately one-half of our total FY 88 requirement. The Air Force is concerned over these reductions, especially since zero OWRM funding means sustainability stocks are not being bought for new force structure entering the inventory (F-15Es, F-16C/Ds, MC-130s, C-5Bs).

Munitions. Providing top-quality lethal munitions to combat forces, with emphasis on the air-to-air threat munitions, remains a high priority. However, previously programmed increases in procurement of modern air-to-ground munitions have been slowed, and the outlook in the FYDP period does not project the significant growth originally planned. Nevertheless, our revised program is an integrated, steady acquisition strategy to improve the total combat capability of the Air Force.

In air-to-air munitions, we continue to procure AIM-9 missiles and AIM-7 missiles at the same time more capable missiles are being developed to upgrade the air-to-air forces. As the Advanced Medium Range Air-to-Air Missile is phased into production, we will ease the AIM-7 out of production. The existing air-to-surface inventory permits flying 100 percent of projected wartime sorties with full weapons loads; however, many missions would be flown with less effective general purpose munitions. We have large munitions stockpiles of general purpose bombs, cluster munitions and early, more limited, guided weapons. The continued development and procurement of highly effective, new-generation weapons is essential. New, efficient, lower cost-per-kill munitions are just beginning to enter the force.

Petroleum, Oil and Lubricants. The availability of petroleum stocks is a critical logistical support area in sustaining sortie generation. There are no substitutes or less preferred products for the required petroleum commodities. The five-year Air Force plan (FY 88-92) will fill over five-million barrels of on-base war reserve materiel (WRM) storage capacity at specific beddown locations. Over the same period, the Air Force projects that the Defense Logistics Agency (DLA) will allocate an additional six-million barrels of new terminal storage to wartime requirements. The combined programs, executed as planned, will reduce our existing prepositioned WRM storage shortfall approximately 25 percent by the FY 92 timeframe, after factoring in projected requirements growth. However, despite a substantial improvement in the prepositioned stockage posture, a significant shortfall will still exist. The Air Force program addresses storage problems at specific locations, while DLA pursues shortfalls from the larger theater perspective. The Air Force goal is to preposition sufficient bulk petroleum stocks at our operating locations to sustain combat sortie generation and ground operations until resupply and redistribution from off-base sources can meet the average daily demand.

Prepositioning. The objective of the prepositioning program is to provide combat troops with a supply of equipment and other resources for rapid response in the event of crisis. Prepositioned resources are replenished with follow-on resupply by airlift and sealift. To meet the objectives in the early days of conflict, the Air Force stores equipment and supplies in Europe, Southwest Asia and the Pacific for deployed US forces. With equipment and supplies prepositioned in the theaters, we can concentrate on movement of troops and support equipment at the outbreak of the conflict.

Although a decrease from FY 87 funding, our FY 88 budget request of $3.01 billion continues building the prepositioned stocks.

AIR BASE OPERABILITY

The improving Soviet air, missile, chemical and conventional attack capabilities increase the vulnerability of our wartime operating bases. Theater air bases must have the ability to survive an enemy attack and still generate combat sorties.

The Air Base Operability Program consists of complementary programs to prevent damage by actively defending against the air and ground threat; limit damage by providing passive defense measures, including hardening, force dispersal, camouflage, concealment, deception, and chemical warfare defense; and repair damage by the rapid assessment and recovery of facilities critical to air operations by removing unexploded ordnance and applying repairs.

In concert, these improvement efforts improve our readiness, sustainability, modernization and force structure. This program draws on complementary funding from many appropriations, NATO infrastructure funding, and on host nation and other Service support.

The $185 million requested in FY 88 continues programs that increase the operability of our personnel and equipment during crisis.

AIR BASE GROUND DEFENSE

Intelligence sources have identified a wide spectrum of ground threats to our air bases. Of particular concern is the threat posed by special operations forces, saboteurs and terrorist activity. In addition, some bases could expect attack by airborne, air assault and air land units. Air Force operational doctrine has been developed to counter these threats. The Air Base Ground Defense (ABGD) Program provides resources and training necessary to implement this doctrine.

The May 22, 1984 CSAF/CSA Memorandum of Agreement contains two initiatives directly impacting the ABGD Program. One tasks the Army with providing ABGD beyond the base boundary. Conversely, the Air Force retains internal (on-base) defense responsibility as well as operational control over the joint defense force. The other initiative tasks the Army with providing ground combat training to Air Force ground defense forces.

The CSAF/CSA initiatives have resulted in significant adjustments in the ABGD funding profile, including the FY 88 increment. Further out-year adjustments, if necessary, will occur as implemention of these initiatives continues.

HOST NATION SUPPORT

Host Nation Support (HNS) includes those services that allied nations provide to US forces deployed in support of overseas defense commitments. The goal for wartime HNS (WHNS) is to ensure the availability of critical wartime logistics support for forward deployed and reinforcing US forces without further straining US mobility and support resources. This enhances combat readiness by reducing the requirement for deployment of US logistic support units.

The Air Force seeks to increase assured host nation contributions for support of our combat forces when militarily prudent and politically feasible. HNS can help reduce the logistics support shortfalls by providing personnel and equipment, reducing airlift requirements.

The Trans-Atlantic Bargain established at the 1978 NATO summit called for an increase in US reinforcements to NATO if the allies would increase their level of support. In 1980, the US identified long-term, time-phased HNS logistic requirements and provided them to host nation Ministries of Defense. These initiatives resulted in signed Statements of Principle with Belgium, the Netherlands, Luxembourg and the United Kingdom, indicating their willingness to increase support of US forces in wartime. On April 15, 1982, the US and Germany signed a WHNS Agreement entailing the creation of new units in the Bundeswehr Reserve that, upon mobilization, would be dedicated to the wartime logistics support of US combat forces. The Air Force will receive German support personnel for airbase security, airfield damage repair, Collocated Operating Bases augmentation and medical evacuation. Under a cost sharing formula that supports the agreement, the US pays for civilian salaries, procurement of unit equipment, and annual operations and maintenance.

Assured HNS complements and increases our combat capability through allied involvement and burden sharing. The Air Force objective is to use HNS to reduce present documented shortfalls in force structure. However, Central Region HNS must not develop into a reliance that would preclude US requirements for worldwide flexibility and deployment. Premature adjustments to US Active duty/Reserve strength based on potential HNS would be unwise. HNS should not be considered as a direct offset to US force structure until the sum of the assured HNS, plus the capability of US support units, equals or exceeds the total requirement. Assured HNS assumes resources are fully manned, trained, equipped, exercised, successfully evaluated and included in contingency plans. Until these criteria are met, HNS should be considered a risk reduction measure.

COLLOCATED OPERATING BASES

The Collocated Operating Bases (COBs) Program was developed to provide beddowns for CONUS-based European augmentation forces. COBs are allied military bases with excess capacity and facilities that could be used in wartime to support US reinforcements. USAFE has presently identified over 70 COBs for FY 87. The number varies as negotiations with NATO allies continue and force structure is adjusted to meet the threat.

USAFE has determined the minimum essential facilities (MEF) required for operations at each COB are adequate aircraft parking (not necessarily dispersed) and storage for seven days of POL and munitions. Other essential operating facilities and airfield operability measures are also required, but MEF will permit combat operations from the COBs.

Funding for MEF comes from the AF budget and the NATO Infrastructure Fund. From 1978 to 1984, we provided approximately $43 million of military construction funds for prefinancing MEF, and NATO funding totalled approximately $83 million of COB upgrades. In FY 83-85, the US emphasized the necessity to pursue NATO funding vice prefinancing, and NATO has made important progress. The NATO Infrastructure Program for 1985-1990 significantly increased the funding for support facilities and protective shelters, resulting in the funding of all known MEF requirements; construction is expected to be completed by 1992.

As of September 1986, $592 million (all Services) has been authorized and appropriated for prefinancing COB upgrades. A sum of $410 million has been recouped from NATO, leaving $182 million to be collected of which $47 million has been programmed by NATO in infrastructure slices. Recoupment of the remaining $135 million will be requested in the NATO Slices 39-41 (CY 88-90), but attainment of this goal is subject to many variables outside our direct control. Recoupment of prefinanced projects competes directly with the new projects for NATO infrastructure funds; however, the US goal is to recoup all funds in the current slice group.

MEDICAL WAR READINESS

The mission of the USAF Medical Service is to maintain the health of Air Force personnel to ensure maximum wartime readiness and combat capability. The Medical Service also provides, to the greatest extent possible, a peacetime health care system for all beneficiaries. To fulfill the mission, the Air Force Surgeon General has established four major Medical Service priorities: (1) readiness/operational support, (2) quality of care, (3) management innovation and (4) patient satisfaction. Achievement of these priorities is enhanced by a renewed emphasis on responsibility, leadership, accountability and officership. Accomplishing these priorities will raise the quality of health care, lessen dependency on the more costly alternative of CHAMPUS and increase wartime readiness.

The Air Force has procured two-thirds of the resources for projected wartime patient requirements. Substantial improvement in theater medical capability has been made. As of September 1986, an aggressive war reserve materiel procurement program has resulted in the purchase of twenty-three 500-bed contingency hospitals. Eleven hospitals have been delivered to the European theater. All theaters are receiving increased stocks of medical materiel for their war reserves programs. With a sustained funding profile through the FY 88-92 FYDP, 96 percent of the medical materiel requirement can be procured. A fully funded FY 88/89 appropriation buys one 500-bed contingency hospital; two 250-bed aeromedical staging facilities; and fifty-one second-echelon (emergency treatment) units.

Programmed manpower increases, needed to staff the wartime medical structure, will meet 90 percent of the manpower requirement by FY 92. These additional personnel contribute to the war readiness capability and also allow expansion of peacetime medical services and better quality of care.

Hospital Facilities Provided by Host Nations. An agreement has been reached with the United Kingdom for the interim use of 40,000 civilian hospital beds during the initial days of conflict. The Air Force peak casualty load is predicted to occur early in a NATO conflict; therefore, this agreement significantly enhances the existing level of medical readiness, until additional increments of the casualty care system are established. In conjunction with the unified commands, Air Force components attempt to obtain buildings from our allies and host nations. These buildings are then modified to become one or more of the contingency hospitals. In Europe, we have successfully obtained buildings on five old Royal Air Force bases in the UK. Additionally, we have obtained two hospitals in the Federal Republic of Germany, a site to accommodate two hospitals in Luxembourg, and one hospital each in Denmark and the Netherlands. In the Pacific, the Republic of Korea has provided land, and construction is underway for one 500-bed hospital at Kimhae.

Negotiations continue with our allies and host nations to obtain their support to preposition medical assemblages at or near the site of employment. Unfortunately, owing to national, economic and political sensitivities, the process is slow, and the outlook is not very optimistic. When host nation support is not forthcoming, our commitment to medical readiness must be achieved by building medical war reserve materiel warehouses through the Military Construction Program.

Joint Medical Readiness Initiative. The Air Force is working very closely with the Army and Navy to improve medical support in wartime. Under the auspices of the Joint Chiefs of Staff Medical Steering Committee, the Services work the issues related to medical support in the unified commands. For example, in the European and Pacific theaters, the number and locations of each Service's medical facilities have been determined. Under the Defense Resources Standardization Board, quad-Service tables of allowances have been approved, standardizing the materiel to be procured in the deployable medical systems. Finally, manpower authorizations for an increase in the unified commands medical planning staff at USEUCOM and USSOUTHCOM have been provided.

INSTALLATIONS

The condition of Air Force facilities directly affects combat capability. Runways, taxiways, aircraft shelters, missile silos, launch control centers and maintenance buildings must be in good condition and operating properly to sustain operations during hostilities. Military family housing, airmen dormitories, dining halls and community/recreational facilities provide for our people's basic needs, contribute substantially to productivity and to their morale and welfare, keys to the retention of quality people.

Funds for repair and maintenance of our installations are included in the Operation and Maintenance (O&M) appropriations. The Air Force O&M funding shortages in the mid-to-late 1970s resulted in deteriorated facilities and large backlogs of needed equipment and maintenance. Additionally, the FY 88 Military Construction (MILCON) budget request is the lowest since FY 81. At current funding levels, Air Force facilities are revitalized on a replacement cycle in excess of 100 years. This exceeds the expected economic life of these assets. The military family housing budget request provides increased funding to begin correcting the deficiencies in the housing inventory. At this increased level, it will still take 24 years to renew over 80,000 units to standards routinely found in the local civilian community.

In the continuing effort to make Air Force bases better places for our people to live and work and to maximize efficiency in our base-level operations, we participate in the DOD Model Installation Program. This program tests innovative methods of improving the management of base operating support services.

MILITARY FAMILY HOUSING

The cost, quality and availability of housing for military families is a major concern for the Air Force. Family housing ranks high on the list of importance to married members. When housing is not available in local communities or is too costly for our families to afford, the Air Force constructs housing units on or near the bases. The Air Force currently owns and operates over 140,000 housing units in the continental US (CONUS) and overseas for military families.

Today, most Air Force families assigned in the CONUS are adequately housed either on base or in local communities. In various locations and some large urban areas, affordable housing is not available, and new or additional government housing must be provided. Currently the CONUS housing deficit is over 12,000 units. Overseas, the housing problem is much more severe. The Air Force has a 21,700 unit housing deficit, with the majority occurring at 28 bases. Families sometimes must live in inadequate, substandard and unsanitary conditions in order to maintain family integrity. Frequently, the only housing available is located more than an hour away, over narrow, dangerous roads where winter weather creates a major driving problem. In other areas families don't have potable water or adequate sanitary systems; streets are unimproved; and the security of their homes, vehicles and possessions is marginal. These housing inadequacies lead to poor morale and reduce productivity, ultimately causing retention problems. In FY 88 we are requesting $925 million to construct, improve, lease, operate and maintain family housing. These funds will provide new units at various locations, along with a housing support facility. Additionally, the Air Force will begin a reduction in the backlog of houses requiring substantial improvements to meet current standards.

REAL PROPERTY MAINTENANCE ACTIVITY

The Real Property Maintenance Activity (RPMA) Program operates and maintains Air Force facilities throughout the world, including 129 major installations. RPMA resources are primarily devoted to the must-pay activities required to keep our bases open. About 80 percent of the RPMA budget goes to utilities, crash rescue, fire protection, snow removal, rents, leases, custodial services and routine maintenance and repairs. The remaining funds are used for contracted facility projects to improve, preserve and extend the useful life of our physical plant, currently valued at over $117 billion. We are requesting $3.08 billion in FY 88 for RPMA.

The condition of our physical plant directly contributes to Air Force readiness and sustainability. The backlog of maintenance and repair (BMAR) level is used as an indicator of facility condition and funding adequacy. Congress directed a BMAR containment level of $300 million to reduce the backlog to a manageable level. By the end of FY 88 the Air Force projects the BMAR to be about $771 million in deferred facility requirements or approximately $471 million above the congressional containment level. The congressional additions to RPMA in FY 84 through FY 86, funding from other unexecutable O&M programs and a satisfactory FY 87 funding level arrested the previous upward trend and essentially kept the backlog from growing above the FY 84 level. However, the budget request for FY 88 allows the BMAR to increase by not allocating sufficient resources to meet new requirements of force structure growth and make a sizeable reduction in the backlog.

MILITARY CONSTRUCTION PROGRAM

Military Construction Program (MCP) funds support new and increased missions and readiness as well as quality of life and workplace improvements. The Active force MCP request is broken down into the categories shown below.

Military Construction Program Funding
(Millions)

	Appropriations		Request	
	FY 86	FY 87	FY 88	FY 89
New Mission	819	654	772	1008
Current Mission	887	629	729	731
General Cost Reduction	(-43)	(-41)	-	-
Total	1663	1242	1501	1739

Military construction is categorized as New Mission and Current Mission. New Mission MCP supports weapon system beddowns, force structure changes and force sustainability. This account is categorized as direct mission support, a must-pay requirement. Current Mission MCP revitalizies the existing physical plant by upgrading or replacing facilities and supports the elimination of deficits associated with currently assigned missions.

The need for reasonable growth to build better facilities and improve productivity is a perennial issue. Previous appropriations have tended to constrain each year's MCP, and many of the existing facilities are becoming obsolete. Program levels from FY 82 to FY 86 have been held to the $1.4-to-$1.5 billion range; the FY 87 appropriation of $1.2 billion reflects a downward trend. The Air Force strongly supports increased funding for facility modernization to reverse this trend. These capital investment programs are key to the establishment of living and working environments essential to the retention of a quality force.

HAZARDOUS WASTE DISPOSAL PROGRAM

Since CY 80, the Defense Logistics Agency (DLA) has been primarily responsible for hazardous waste disposal for each of the Services. Funding for the disposal has been provided directly to DLA via the special Defense Environmental Restoration Account. The Secretary of Defense reassigned the hazardous waste disposal responsibility from DLA to the respective Services beginning in FY 87. Resources, previously budgeted for by DLA, have been realigned to the Services, so each assumes the financial responsibility of its own operations. The Air Force funding share in FY 88 is $25.4 million.

Central funding procedures with DLA were developed with all the Services to preclude any potential break in DLA's service to Air Force installations and to prevent any direct impact to existing budgets. These procedures will continue until arrangements can be made with DLA for each installation to provide direct payment to its servicing agency. When arrangements are implemented, Air Force funds will be allocated to the RPMA portion of each commander's predominant major force program, planned to occur sometime in FY 88.

NATO INFRASTRUCTURE FUNDING AND ALLIED CONTRIBUTIONS

NATO Infrastructure Program

FUNDING ($M)	Slice 34 (CY 83)	Slice 35 (CY 84)	Slice 36 (CY 85)	Slice 37 (CY 86)	Slice 38 (CY 87)
US (Europe)*	213.0	213.4	471.6	309.1	TBD
Air Force	129.6	118.1	180.0	187.4	183.0**

US Prefinancing (as of Sep 1986)

	TOTAL	RECOUPED	BALANCE
US (Europe)*	578.7	408.1	170.6
Air Force	370.1	235.8	134.3

*Excludes SACLANT
**USAFE estimate

The NATO Common Infrastructure Program is funded by member nations who contribute an agreed percentage to a six-year cost-share period termed a "Slice Group." The US share is 27.82 percent; yet, historically, the US has received a larger percentage in funded projects. The six-year Slice Group is divided into individual slices for programming purposes. The previous Slice Group, 31-35, was funded at 1.2 billion infrastructure accounting units (IAU), or approximately $3.2 billion. The level of this Slice Group prevented the funding of NATO-eligible projects such as collocated operating bases minimum essential facilities and semi-hardened aircraft shelters for tactical air reinforcements. The Air Force accelerated the construction of these facilities by prefinancing them, resulting in a large backlog of unrecouped NATO-eligible projects.

FY 87 congressional reports continue to stress the need to completely recoup all prefinanced projects prior to submitting additional requests to prefinance. NATO planning calls for the recoupment of all 161 prefinanced aircraft shelters plus the construction of some 500 additional shelters. All known minimum essential facilities are programmed (by 1990). The DOD goal is to obtain NATO programming for all recoupments in the current infrastructure funding cycle (Slices 36-41).

NATO Ministers agreed to fund the current Slice Group (36-41) at 3 billion IAUs during the December 1984 meeting in Brussels. Given the 3-billion IAU ceiling, the Air Force will probably recoup most of the prefinanced projects.

MANAGING RESOURCES

As stewards for the taxpayer, the Air Force is committed to getting the most from every defense dollar. However, as highlighted by the President's Blue Ribbon Commission on Defense Management, many Americans believe tax dollars are mismanaged. Almost two-thirds of those polled in a comprehensive survey believed substantial fraud, waste and abuse occurred in defense spending. Clearly, the combination of scarce resources, growing global threats to our security and public perception that we are poor managers pose major challenges for the Air Force.

We have been meeting these challenges head-on with a comprehensive, integrated approach. Improvements include: aggressive contract auditing to reduce acquisition costs; the Zero Overpricing Program; more efforts to reduce fraud, waste and abuse; increased competition among contractors; improved spare parts management; better program stability; increased multi-year procurements; a new approach to quality and productivity; and a host of readiness and sustainability improvements. In keeping with FY 87 congressional direction, the Air Force has nominated the C-17, SRAM II, Titan IV and the Medium Lanuch Vehicle as Defense Enterprise Programs. If approved, the programs will be given special management, oversight and funding considerations to streamline the development and acquisition process.

To further improve the quality of the weapons we procure, we are demanding improved reliability and maintainability (R&M) of new and fielded weapon systems. This commitment is the cornerstone of the R&M 2000 action plan, implemented on February 1, 1985. Improvements in R&M pay off over the long run by creating better combat capability, reducing operating and support costs.

Our goal for the future is to continue the progress we've made, while implementing the recommendations made by the President's Blue Ribbon Commission of Defense Management. However, in spite of the many successes and our concerted efforts to further improve the way we do business, regaining the public's confidence remains a formidable task.

ACQUISITION MANAGEMENT

The Air Force manages a logistics system that includes almost a million items, and the list is growing by almost 40,000 items annually. We award almost five-million contracts a year valued at more than $53 billion. In a system this large and complex, occasional mistakes will inevitably occur. Unfortunately, even the slightest error contributes to the perception that our procurement system is inefficient. That these errors involve only a fraction of our overall procurement picture often goes unnoticed. Also rarely noted is the fact that almost every so called horror story was discovered and corrected by Air Force personnel long before becoming a media event.

Of the many good stories, few get told. For example, purchase of 720 F-16 fighters under the second F-16 multi-year contract represents a savings of $467 million compared with the costs of separate year contracts.

The Air Force will press forward with bold initiatives to better manage the resources given us. Our budget was developed, considering a broad range of new acquisition management practices. Procurement procedures have been improved, and management procedures have been refined to ensure better control of our resources. In conjunction with this budget submission, significant improvements will be implemented in basic acquisition policy, spare parts acquisition, people programs, and reliability and maintainability. The following are some of the most important programs and procurement strategies that underwrite our efforts.

Acquisition Streamlining. We believe overspecification can be a significant cost driver during weapons acquisition programs. In seeking ways to reduce unwarranted specification requirements, the Air Force has already changed regulation and review processes. In addition, overspecification control has become one of the basic considerations in our Zero Overpricing Program. We have also created Streamline Advocates to systematically review the acquisition process to reduce the time and cost of weapon systems and improve product quality. For example, the new C-17 transport plane contains fewer than 500 specifications, compared to 15,000 for the C-5A at a similar stage of development. Fewer specifications allow purchasing off-the-shelf components at lower cost. To be fully successful, we will continue current initiatives, control requirements and streamline the process whenever possible.

Program Stability. To be efficient, the acquisition process must operate in an environment of stable requirements, adequate financial resources and strong managerial support. Without improved stability, the acquisition process will be continually faced with uneconomical program stretch-outs, cost overruns and management inefficiencies. The FY 88 program is based on employing proven management techniques to encourage this vital stability in programs. Longer tours for program managers will also be a major improvement, bringing more continuity and stability to programs.

Program Baselines. Acquisition program baseline agreements help stabilize programs after reaching full-scale development by minimizing changes and ensuring tradeoffs are made with full understanding of program impact. We baseline major programs that offer the greatest potential for controlling costs through requirements stability, such as the Defense Meteorological Satellite Program. Each baseline is a formal agreement among the weapon system developer, usually Air Force Systems Command, the user, such as Strategic Air Command, and the supporter, usually Air Force Logistics Command. The participants agree in writing that the requirement, direction, funding and schedule allow us to field a system when it is needed, at a realistic cost, with the required capability and the proper logistics support. Changes are reviewed by all participants to ensure full understanding of impacts to the program. This process has resulted in better communication among all participating commands and agencies and, ultimately, more efficient, stable programs.

Increased Competition. The most widely recognized method to lower the procurement cost of an item, service or entire system is to openly compete the acquisition, a strategy the Air Force has been using for years. With the increased emphasis on improving the acquisition process, we instituted a Competition Advocate Program in January 1982, directing all major air commands and operating agencies to appoint competition advocates to establish competition requirements and develop acquisition strategy. The Competition in Contracting Act led to the establishment of an Air Force Competition Advocate Office, headed by a general officer, who reports to the Assistant Secretary of the Air Force for Research, Development and Logistics. The competition advocate challenges barriers to full and open competition; reviews justification for significant non-competitive procurement actions; recommends and tracks competition goals; and provides policy directives to assign accountability for competition. For the first time, as a result of the Air Force aggressive competition program, we competed over 50 percent of the dollar value of contracts awarded in FY 86, a 39 percent increase over FY 85. Additionally, non-competitive awards were driven down toward 10 percent. The remainder of the dollars were awarded as follow-on to contracts initially competed. For FY 87 the Air Force goal is to drive noncompetitive awards below 10 percent and compete 55 percent of the dollars awarded.

The Air Force seeks competition at the prime contractor level and at subtier levels, such as subsystem subcontractors and component vendors. We attempt to keep several contractors competing in the development of the weapon system at the prime contractor level, until costs prohibit funding multiple contractors simultaneously. As an example, the Air Force asked for proprosals from seven prime contractors during the conceptual phase of the Advanced Tactical Fighter Program, and two contractor teams are currently competing through the prototype phase.

Second Sourcing. Another acquisition technique used to increase prime contractor competition is developing a second source for the system. We start cultivating a second source early in the system acquisition process to achieve second source availability at the beginning stages of production. One of the best examples of this form of competition was between General Electric and

Pratt & Whitney, resulting in engines with improved operability and reliability. We now have two suppliers, and each gives improved warranties with their engines. Follow-on competition is continuing for spare parts. We estimate savings from this competition will be from $3 billion to $4 billion.

Component Breakout. The Air Force is also actively working to save contract dollars below the prime contractor level. By breaking out components from prime contractors we save overhead and handling costs. Examples include: F-16 and B-1B canopy transparencies, wheels and brakes; B-1B inertial navigation system, radar, radome, vertical situation display, and gyro stabilizer; and the F-15 countermeasures dispenser. Also, we actively encourage competition by prime contractors with their vendors and suppliers. Although subtier competition is not computed in Air Force competition statistics, it produces all the benefits derived through competition between prime contractors for our weapon system programs.

Multi-year Procurement. Control of changing requirements is important, but funding stability is also a major contributor to program success. With congressional support, multi-year procurement has become a significant factor in stabilizing funding during a program's production phase. With freedom from disruptive quantity changes, contractors can economically procure material and set up efficient production facilities. Since the multi-year procurement law was expanded in 1982, the Air Force has initiated fourteen major efforts involving multi-year contracting techniques, resulting in savings of over $3.7 billion.

Should Cost. Should-cost reviews are being conducted on our major procurement programs to ensure engineering labor, manufacturing effort and overhead resources are as efficient as possible. A government evaluation team, consisting of engineers, auditors and pricing specialists, reviews all areas of cost and prepares an overall evaluation. These recommendations are then used in the formulation of price objectives used during negotiations. Should-cost team members participate in negotiations and assist the contracting officer in realizing potential savings. Should-cost analyses have yielded significant cost savings in the past. To aid in evaluating other programs, documentation becomes part of a history available for use by other should-cost teams, faced with similar program reviews.

Work Measurement. Program managers are incorporating the requirements of MIL-STD-1567A, Work Measurement, into applicable contracts as one means of obtaining direct manufacturing productivity improvements and reducing manufacturing costs. Air Force Systems Command reviews contractor productivity data during program assessments and requires the use of engineering work standards in estimating and negotiating contract costs.

Data Management. Access to technical information remains one of the greatest challenges to acquisition management. The Air Force Systems Command's management office for the automation of technical information oversees a number of major Air Force projects in the areas of computer-aided design, computer-aided manufacture, engineering drawings and specifications, and technical publications. Each project is funded separately, has its own management organization and seeks a unique end product. To assist each project in reaching its goal and to guard against any duplication, the management office has taken on the role of integrator. All projects must progress toward, and contribute to, the same basic goal: a totally integrated capability to create, store, maintain, retrieve and distribute data, using digital technical information in support of all Air Force weapons systems throughout their life cycles.

Spare Parts and Support Equipment Acquisition. The Air Force supports 139 Active bases and 188 Guard and Reserve installations as well as radar sites, ballistic missile locations, electronic combat operations sites and other auxilary airfields. In all, we support some 2834 locations around the world. In the area of spare parts, the Air Force manages nearly a million types, with an active inventory worth more than $38 billion. We process several hundred thousand spare parts procurement actions each year. The system is large, complex and dynamic, employing thousands of people. The basis for improvements has been a series of major studies by the Air Force to uncover the reasons for the high costs of spare parts. As a result, many new procedures have been implemented to permanently correct faults.

The most exhaustive spare parts study undertaken by the Air Force was produced by the Air Force Management Analysis Group (AFMAG) in October 1983. The 62-member group of logistics and contracting professionals made 178 recommendations, serving as guideposts for solving the overpricing problem.

Support equipment development and purchase must parallel weapon system development and production to ensure a supportable system is placed in the field. In 1984, a Support Equipment Acquisition Review analyzed this process carefully. Nineteen areas were identified for improvement in forecasting, planning and pricing. The review identified controls needed to prevent the proliferation of unique support equipment and specialized tooling.

The Department of Defense Spare Parts Breakout Program requires the identification of all parts procurable competitively or from actual manufacturers rather than from the prime contractor. To accomplish this goal, Air Force Logistics Command Competition Advocates screen anticipated buys for potential breakout to the actual manufacturer. In FY 88, we expect the breakout program to promote more competition among Air Force contractors to reduce sole-source procurements, broaden the industrial base and lower prices for spare parts.

The Air Force stresses retaining spare parts. The Secretary of the Air Force directed a five-point program in 1984 that began with a moratorium on all disposal actions. New procedures are now in place to implement the five-point retention program, and the moratorium has been lifted.

Warranties. Over the past 20 years the Air Force has negotiated various types of warranties, guarantees and incentives to help ensure high-quality weapon system performance. Program managers have been innovative in the use of agreements, such as correction of deficiency clauses, availability guarantees and reliability-improvement warranties. Our policy of carefully selecting and tailoring the agreements has been key to the success of programs such as the KC-10, F-16 and Alternate Fighter Engine.

A provision of the FY 85 DOD Authorization Act went even further by requiring warranties on most weapon systems and subsystems. Under this concept, the contractor must commit to meeting design and manufacturing specifications in the contract, guarantee essential performance requirements, and guarantee a product free from defects in materials and workmanship. Compliance with the guarantee provision can be demonstrated by operational use for a specified period or through demonstration/test. The contractor is financially responsible for repair, replacement or even redesign of systems or components not satisfying the guarantee requirements.

Air Force Systems Command's product division commanders have been delegated the authority to determine which major weapon systems or subsystems require warranties and the essential performance requirements. These decisions are made on a case-by-case basis by people knowledgeable about the system, allowing flexibility when dealing directly with contractors to define performance incentives.

Acquisition Career Field. The Air Force has long recognized the need for a well-qualified acquisition community and is a leader in acquisition training and career development. As the leader among the uniformed Services and in response to congressional mandate in the FY 85 and FY 86 authorization acts, we have implemented the DOD prototype acquisition management development plan. The plan provides for technical education and training programs as well as specific acquisition experience. It also meets the legislative requirements and provides a full range of experience in acquisition program management, with emphasis on operational experience. Our acquisition career field offers progression paths to General Officer and Senior Executive Service levels, and our personnel are among the best trained in DOD.

Project COPPER TOP was instituted to examine current training shortfalls within the contracting work force, identify problems with the training system, develop alternatives and prepare a plan for corrective action. The additional training funds, included in the FY 86 and FY 87 budgets, will help correct a 60-percent shortfall in the completion of mandatory training courses. Current initiatives include establishment of mandatory training requirements for the Quality Assurance career field, establishment of a mandatory contracting officer course and participation in course reviews.

PALACE ACQUIRE is a centrally-managed and funded competitive intern program. This initiative was established in 1985 and is targeted to recruit recent college graduates to entry-level GS-5/7 trainee positions in a variety of occupational fields. The program scope is based on work force analyses of turnover rates, mission and technological changes. The contracting career field, for example, already has a turnover rate 13 percent above other career fields. The Air Force projects a 20-percent loss of contracting professionals due to retirements alone during the next five years. PALACE ACQUIRE will help maintain civilian work force stability and expertise in major functional areas by providing a pipeline of experienced, highly skilled civilian employees.

Logistics Management Systems Modernization Program. Today, Air Force Logistics Command operates over 500 data systems. The majority of these systems rely on technology of the early 1970s. The Logistics Management Systems Modernization Program, an innovative program to improve and modernize our information system capabilities, is an umbrella for nine development projects. Systems are being designed to facilitate management, such as letting an item manager know that Part 3G11829, for example, is a simple bolt. The manager will know instantly how many bolts are on hand, how much the Air Force paid for them and how many vendors can supply them.

Ensuring Contractor Performance. The Air Force is becoming a much more demanding customer. The majority of our 100,000 contractors provide products or services within the terms of their contract. Those who do not are called to account. During FY 85 we suspended or debarred 60 contractors, about double the number in 1984. In FY 86 the Air Force debarred or suspended 79. To date, we have received $9.4 million in voluntary refunds from overcharges. At one point in FY 86, we were withholding more than $250 million in progress payments.

The Air Force and industry are keenly aware that cooperation and interaction are essential to the success of current and future programs. Most defense contractors are concerned and are taking strong actions to correct problems from within.

Defense Industrial Base

The US defense industrial base produces and replenishes our warfighting systems and consumables. Its productivity, responsiveness, preparedness and ability to mobilize are critical to national security. Our annual Production Base Analysis indentifies where we should invest in the industrial base. We invest to maintain, modernize and improve our 13 government-owned, contractor-operated (GOCO) facilities, develop new manufacturing processes through the Manufacturing Technology (ManTech) Program and provide incentives for contractor capital investments through the Industrial Modernization Incentive Program (IMIP). Over the long term, ManTech and IMIP return up to $10 for every $1 invested, making weapons less costly and releasing Air Force funds for other needs.

Fraud, Waste and Abuse

The Air Force Fraud, Waste and Abuse (FW&A) Program seeks to minimize the diversion of defense funds and resources by illegal, unauthorized or wasteful practices. Air Force policy is to use all available means to prevent, detect and correct FW&A. Our primary focus is on prevention.

In FY 86, the Air Force spent $195 million to conduct audits, investigations and inspections. There were 1800 audits, 1429 inspections and 1491 fraud related investigations conducted by the Air Force Office of Special Investigations (AFOSI). Emphasis has been on reviews of the high vulnerability areas; i.e., supply, comptroller, maintenance, procurement and information systems. Specially trained investigators have been assigned to support USAF plant representative offices in contract fraud investigations. An additional project is planned to increase investigative support to Air Logistics Centers to investigate spare parts acquisition. One thousand and forty-four hotline cases received action at Headquarters Air Force in FY 86, 765 from Air Force sources and 279 from DOD.

AFOSI agents have presented approximately 2400 FW&A briefings in the last fiscal year to more than 90,000 personnel. These briefings inform military and civilian resource managers, contracting personnel, commanders and other key personnel about the high-level emphasis placed on FW&A and its impact on DOD resources. These briefings sensitize Air Force people to the fraud environment and advocate reporting fraud when suspected or detected.

In FY 86, extensive investigative efforts resulted in over 1800 cases referred for prosecution by Air Force officials, and another 200 turned over to federal and local agencies for further investigation. The major savings has been in cost avoidance. Audit activities resulted in potential cost avoidances of $1.1 billion in FY 86.

The Remedies Program, implemented in 1986, is designed to ensure that criminal, civil, contractual and administrative actions are taken for significant fraud cases. Significant cases include all procurement fraud cases opened or monitored by DOD criminal investigative agencies involving loss of $50,000 or more and all procurement related cases involving corruption, bribery, gratuities or conflict of interest offenses.

Reliability and Maintainability

Reliability and Maintainability (R&M) are critical characteristics of effective weapon systems. The slowdown in modernization and reduced funding of readiness and sustainability make it increasingly important for the Air Force to improve its capability while reducing the costs of operating existing and future systems. R&M improvements are a high-leverage means to achieve these goals. Consequently, we continue to emphasize modifications and other improvements that contribute most to the mission requirements of the combatant commands.

In the past, reliability and maintainability steadily improved as new technology was applied to our weapon systems. For example, the Maintenance Manhours per Flying Hour (MMH/FH) have declined for fighter aircraft. The F-15 requires only 85 percent of the MMH/FH as the older F-4 aircraft, and the F-16 requires roughly half the MMH/FH as the F-4. This reduction has allowed us to increase readiness by increasing flying hours without increasing manpower. These improvements are noteworthy, but the present challenges are becoming more numerous and severe. The growing Soviet threat has made our operating bases, the systems, people and support equipment located there increasingly vulnerable. Successful operations in this environment demand increased warfighting capability, survivability and mobility. In addition, manpower availability will decrease over the coming decade, making it more difficult to recruit and train the technical personnel needed to maintain increasingly complex weapon systems. Finally, current budget realities demand lower operationing and support costs.

To help overcome these challenges, the Air Force implemented an action plan in February 1985 called R&M 2000. A basic tenet of this multifaceted effort is that R&M improvements can and must be accelerated on fielded and new weapon systems. The payoff from this acceleration is enhanced combat capability, increased survivability of the combat support structure, more efficient use of mobility and manpower assets, and lower operations and support costs.

A successful R&M program begins with solid requirements and is sustained by good practices and constant management involvement. New technologies allow significant increases in system reliability while reducing our dependence on vulnerable support structures. We are exploiting these technologies to eliminate maintenance and support elements on new systems and reduce these elements for current systems. The Air Force has adopted the following operational R&M goals:

Increase combat capability. The goal is to increase the number of consecutive sorties between system failures, and to decrease the time to diagnose and repair equipment malfunctions. These factors determine maximum sortie-rate potential.

Increase survivability of the combat support structure. Very reliable and simple to maintain systems will help reduce or eliminate wing-level maintenance infrastructure subject to attack and improve the ability of the unit to disperse for survivable operations.

Decrease mobility requirements per unit. By decreasing airlift requirements for support systems, we can deploy more combat units with available airlift, thereby increasing the effective combat power available to theater commanders.

Decrease manpower requirements per unit. Technologies to enhance productivity are being pursued to support current weapon systems. Requirements for new systems now include a highly refined estimate of people and the range of skills required for maintenance.

Decrease costs. The Air Force will continue reversing the costs of operating and supporting our systems, conserving for force modernization and force structure. The payback in improved R&M is not just in operating and support; a smart investment in R&M can save procurement costs.

Two R&D programs helping us achieve these goals are R&M Technology Insertion Program (RAMTIP) and the Productivity, Reliability, Availability, Maintainability Program (PRAM). RAMTIP attacks the Air Force's more pressing R&M needs. First, we fund selected high leverage, generic R&M maturation and technology programs for insertion into current weapon systems. A second effort provides a vehicle to accelerate and apply emerging technologies to developing weapon systems as well as future weapon systems. The three largest projects within RAMTIP are the On-Board Inert Gas Generating System (OBIGGS), Molecular Sieve Oxygen Generating System (MSOGS), and Very High-Speed Integrated Circuit (VHSIC) insertion into the Alaskan Minimally-Attended Radars.

On-Board Intert Gas Generating System (OBIGGS). This project takes advantage of proven new technology for inerting military aircraft fuel tanks against fire and explosion. This effort will design, fabricate and flight test an OBIGGS on the first C-17 test aircraft. Anticipated benefits from this project include elimination of the need for liquid nitrogen, the attendant support facilities, equipment and personnel and lower system support costs. In FY 87 through FY 89, prototype fabrication, installation into the first C-17 aircraft, and qualification testing will be performed to support a production decision.

Molecular Sieve Oxygen Generating System (MSOGS). The MSOGS effort accelerates the incorporation of this high-leverage R&M technology into the F-15E tactical fighter. From studies and operational experience it is known that MSOGS provides significant improvement over the current liquid oxygen (LOX) system. These improvements include greater survivability (LOX infrastructure not required), decreased mobility requirements (3 to 5 fewer C-141 pallet equivalents per deploying squadron), decreased manpower requirements (per wing) and lower life-cycle costs.

Very High Speed Integrated Circuit (VHSIC) Insertion. This program incorporates VHSIC and gallium arsenide technologies into the AN/FPS-117 SEEK IGLOO Minimally Attended Radars in Alaska to improve reliability and maintainability. Payoffs from this initiative include a 300 percent increase in reliability, significantly reducing support costs. This project will be accomplished in overlapping phases in FY 88, beginning with a baseline system design and ending with a production decision in FY 90.

The PRAM Program provides a means to immediately respond to identified weapon system problems with judicious and timely investments that improve combat effectiveness and lower life-cycle costs. PRAM projects fall under the areas of airframes, avionics, propulsion, missiles, depot maintenance and other support areas. Since inception, PRAM has initiated 823 projects with an estimated useful-life cost avoidance savings to the Air Force of $16 billion. This equates to a $30 net return for every dollar invested in PRAM development and modification. The following are examples of PRAM projects:

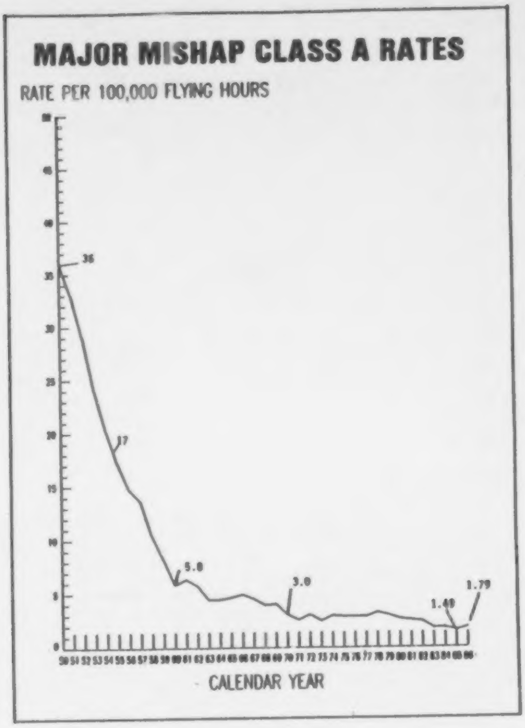
- F-15 Honeycomb Structure Replacement for Stabilators and Wing Tips. This project resolves corrosion, cracking and delamination problems on F-15 stabilator leading and trailing edges and wing tips by replacing the existing honeycomb structure with superplastically formed, bonded, titanium/aluminum. Replacement will provide a two-fold improvement in reliability. Development and implementation cost is $3.5 million. Estimated five-year savings will be $18.3 million.

- B-52/C-130 Autopilot. PRAM has designed a state-of-the-art digital line-replaceable unit to replace the three highest failure components of the B-52 and C-130 autopilots. Incorporation will provide a ten-fold improvement (25 to over 250 hours MTBF) in B-52 autopilot reliability and a doubling (200 to 500 hours MTBF) in the C-130. Development and implementation cost is $11 million with an estimated useful-life savings of at least $300 million.

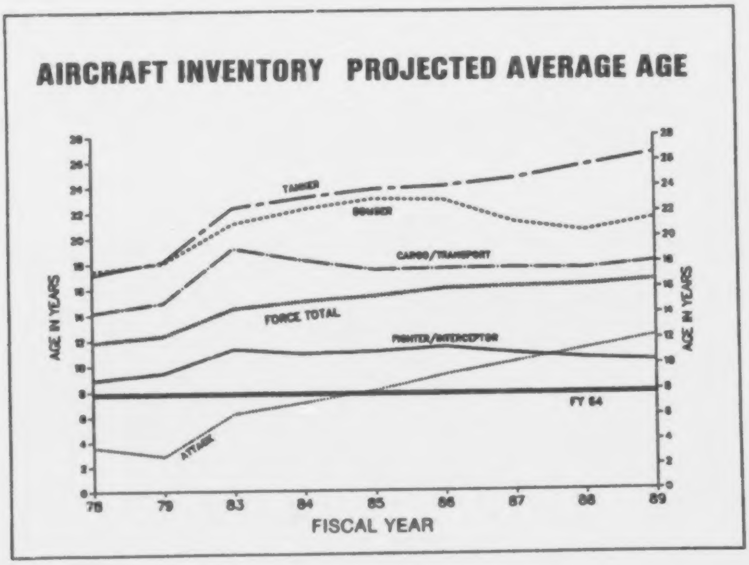
- Extended Life Turbine Wheel. This effort developed new materials for the turbine wheels of the F-16 jet fuel starter (JFS) and the KC-135R quick-start auxilary power unit (QSAS). This new material will extend the service life of the F-16 JFS from 500 starts to a minimum of 2000 starts and the KC-135 QSAS from 1000 hours to over 2600 hours. Development and implementation cost is $1.1 million with an estimated useful-life savings of $92 million.

In summary, the United States Air Force is convinced that its renewed commitment to improved R&M is essential to obtaining higher levels of combat capability in the face of an intensifying threat, constrained manpower and limited fiscal resources. As never before, the opportunity, technology and leadership commitment are in place. With continued congressional and industry support the Air Force will achieve its R&M goals.

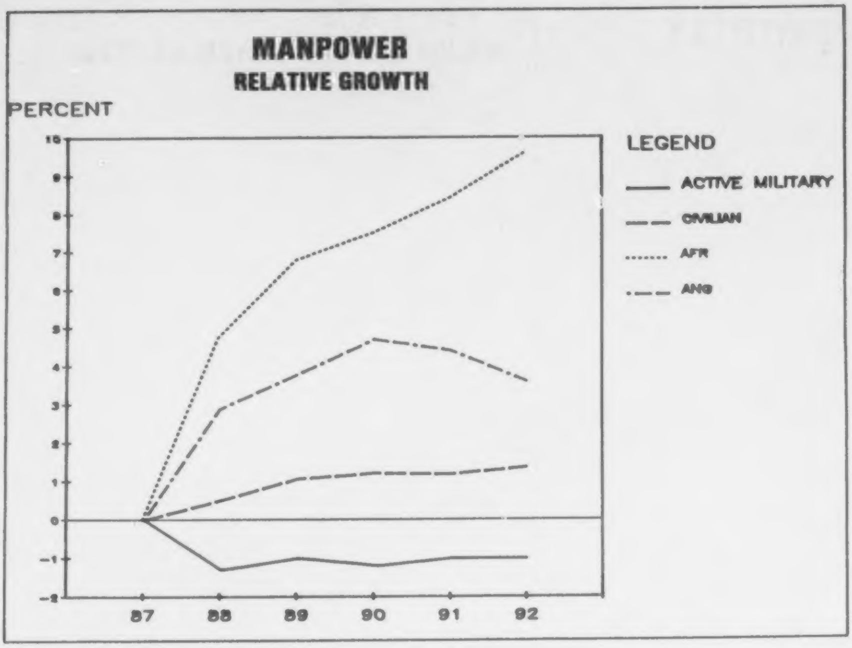
Appendix

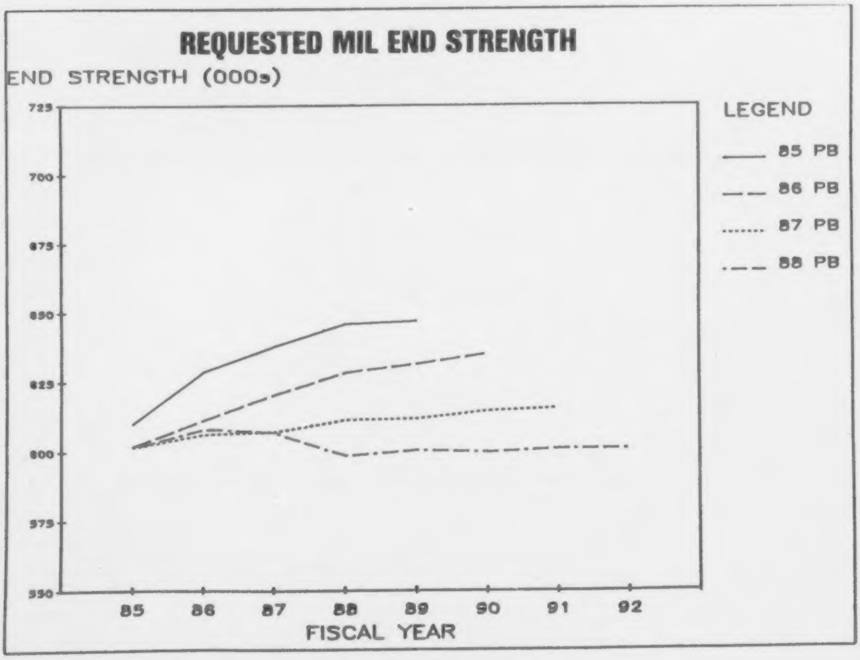


MAJOR MISHAP CLASS A RATES



AIRCRAFT INVENTORY PROJECTED AVERAGE AGE


MANPOWER
RELATIVE GROWTH
PERCENT
10
9
8
7
6
5
4
3
2
1
0
-1
-2
87
88
89
90
91
92
LEGEND
ACTIVE MILITARY
CIVILIAN
AFR
ANG


REQUESTED MIL END STRENGTH
END STRENGTH (000s)
725
700
675
650
625
600
575
550
85
86
87
88
89
90
91
92
FISCAL YEAR
LEGEND
85 PB
86 PB
87 PB
88 PB

SUMMARY OF APPROPRIATIONS (TOA)
(Then Year $ Billions)

APPROPRIATION	FY 87	FY 88	FY 89
Aircraft Procurement	17.4	14.2	17.2
Missile Procurement	8.1	9.8	11.0
Other Procurement	9.5	8.6	9.8
RDT&E	15.4	18.6	17.7
MILCON			
AF	1.2	1.5	1.7
AFR	0.1	0.1	0.1
ANG	0.1	0.2	0.1
O&M			
AF	19.0	21.3	22.2
AFR	0.9	1.0	1.1
ANG	1.8	2.0	2.0
MILPERS			
AF	19.6	19.9	19.9
AFR	0.6	0.6	0.6
ANG	0.9	1.0	1.0
Stock Fund	0.1	0.3	0.2
Family Housing	0.8	0.9	1.0
TOTAL TOA*	95.5	100.0	105.7

*Numbers may not add due to rounding

SELECTED KEY PROGRAMS
(Then Year $ Millions)

	RDT&E		PROC		(QTY)	
	FY 88	FY 89	FY 88	FY 89	FY 88	FY 89
AIRCRAFT (3010)(3600)						
C-17	1219.9	982.0	684.0	1000.0	(2)	(4)
F-15	118.6	69.3	1538.0	1620.4	(42)	(42)
F-16	36.5	23.6	2699.0	3153.3	(180)	(180)
AC-130U	0	0	277.0	245.0	(5)	(6)
MC-130H	8.0	0	372.0	208.0	(7)	(4)
MISSILES (3020)(3600)						
Peacekeeper*	643.2	1225.5	1260.0	1359.0	(21)	(21)
GLCM	5.3	1.0	71.0	11.0	(37)	(0)
AMRAAM	28.2	0	833.0	875.0	(630)	(1750)
AGM-130	40.8	28.1	43.8	92.3	(121)	(235)
Sparrow	0	0	100.0	0	(558)	(0)
Sidewinder	0	0	53.0	48.0	(956)	(760)
Maverick	0	0	355.0	359.0	(2100)	(1900)
HARM	2.0	0	423.0	215.0	(1748)	(893)
SPACE SYSTEMS (3020)(3600)						
DSCS	21.4	53.6	76.0	21.0	(1)	(0)
Navstar/GPS 89	72.1	123.0	93.0	61.0	(4)	(0)

*Includes RDT&E funds for rail-garrison basing

RESEARCH, DEVELOPMENT, TEST AND EVALUATION TOA

BUDGET ACTIVITY ($ Billions)	FY 87*	FY 88*	FY 89*
Tech Base	.8	.8	.9
Advanced Tech Dev	.6	.9	1.0
Strategic	6.0	8.4	8.1
Tactical	3.7	4.5	4.2
Intel/Com	2.4	2.3	2.0
Def Wide Msn Supt	2.0	1.6	1.5
TOTAL	15.4	18.6	17.7
Strategic ($ Millions)			
ICBM Modernization	1547	2875	3461
AFSATCOM/MILSTAR	747	619	590
SRAM II	67	221	232
NORAD Cheyenne Mtn Complex	70	84	77
Tactical ($ Millions)			
C-17	626	1220	982
ATF	249	537	703
Advance Comm	32	35	11
JTIDS	0	44	65
AMRAAM	37	28	0
Joint STARS	300	338	238

*May not add due to rounding

AIRCRAFT PROCUREMENT BY BUDGET ACTIVITY
(Then Year $ Billions)

	FY 87		FY 88		FY 89	
BUDGET ACTIVITY	QTY	AMOUNT	QTY	AMOUNT	QTY	AMOUNT
Aircraft	319	7.2	279	5.6	279	6.3
Modifications		3.2		1.9		2.5
Spares & Repair Parts		3.0		3.0		3.3
Spt Equip & Facilities		3.9		3.7		5.2
TOTAL*		17.4		14.2		17.2

*Numbers may not add due to rounding

AIRCRAFT PROCUREMENT BY WEAPON SYSTEM
(Then Year $ Millions)

	FY 87		FY 88		FY 89		FY 90-92	
WPN SYS	QTY	AMOUNT*	QTY	AMOUNT*	QTY	AMOUNT*	QTY	AMOUNT*
F-15E	42	1644	42	1538	42	1620	252	9577
F-16C/D	180	2707	180	2699	180	3153	870	16395
TR-1/U-2	3	88	0	11	0	13	0	27
MC-130H	7	300	7	372	4	208	0	0
AC-130U	0	18	5	277	6	245	0	0
C-17	0	49	2	684	4	1000	36	8475
C-STOL	0	0	5	66	5	65	0	0

*Does not include initial spares

MISSILE PROCUREMENT BY BUDGET ACTIVITY
(Then Year $ Billions)

	FY 87		FY 88		FY 89	
	QTY	AMOUNT	QTY	AMOUNT	QTY	AMOUNT
BUDGET ACTIVITY						
Ballistic Missiles	12	1.1	21	1.3	21	1.6
Other Missiles	5146	2.3	6698	3.1	5996	2.8
Modifications		.1		.1		.1
Spares & Repair Parts		.3		.2		.3
Other Support		4.2		5.0		6.2
TOTAL*		8.1		9.8		11.0

*Numbers may not add due to rounding

MISSILE PROCUREMENT BY WEAPON SYSTEM
(Then Year $ Millions)

	FY 87		FY 88		FY 89		FY 90-92	
WPN SYS	QTY	AMOUNT*	QTY	AMOUNT*	QTY	AMOUNT*	QTY	AMOUNT*
Peacekeeper	12	1083	21	1260	21	1359	97	4013
GLCM	76	117	37	71	0	11	0	9
AIM-7	349	56	558	100	0	0	0	0
AIM-9	744	40	956	53	760	48	322	31
AGM-65	2000	371	2100	355	1900	359	11900	1022
HARM	1384	364	1748	423	893	215	276	62
AGM-130	40	15	121	44	235	92	863	298
AMRAAM	180	580	630	833	1750	875	6500	2000

*Does not include initial spares

OTHER PROCUREMENT BY BUDGET ACTIVITY
(Then Year $ Billions)

BUDGET ACTIVITY	FY 87	FY 88	FY 89
Munitions & Associated Equip	1.2	.6	.8
Vehicular Equip	.3	.3	.4
Electronic & Telecomm Equip	2.4	2.2	2.7
Other Base Maint & Spt Equip	5.6	5.5	5.9
TOTAL*	9.5	8.6	9.8

*Numbers may not add due to rounding

OTHER PROCUREMENT MISCELLANEOUS
(Then Year $ Millions)

PROGRAM	FY 87	FY 88	FY 89
Munitions & Associated Equipment			
20MM (TNG & Combat)	28	26	31
30MM (All Types)	84	82	84
GBU-15	107	0	0
CBU-89 (TMD/GATOR)	110	0	0
CBU-87 (Combined Effects Munition)	422	277	253
BSU-49/50 Infl Retarder	24	14	11
FMU-139 Fuze	32	40	41
BIGEYE	15	15	90
Bomb Hard Target 2000 Lb	37	33	32
Vehicular Equipment			
High Mobility Vehicle	10	3	1
2½ Ton Cargo Truck	19	18	15
5 Ton Dump Truck	11	6	5
Mobile Arm. Recon. Veh.	0	22	54
Runway/Street Cleaner	20	18	33
Electronics & Telecommunications Equipment			
Weather Observation/Forecast	52	61	73
MAC Command & Control	42	42	48
Over-the-Horizon Backscatter Radar	107	122	215
Automatic Data Processing Equipment	129	120	121
Range Improvements	106	141	180
Joint Tactical Comm Program	151	177	222
Spares	354	269	332
Tactical Air Control System Improvements	50	120	125
SAMTO Test Ranges I&M	44	65	37
Satellite Control Facility	97	114	75
USCENTCOM	26	23	*
Wideband Systems Upgrade	55	42	52
Minimum Essential Emer Comm Net	32	52	41
Other Base Maintenance & Support Equipment			
Test Equipment	111	99	101
Chemical Biological Defense Program	82	115	212
Medical/Dental Equipment	118	111	150
Mobile Electric Generators	26	13	28
Air Base Operability	10	6	44
Mobility Equipment	39	43	61
Base Procured	55	22	22

*Less than $500K

PERSONNEL END STRENGTHS
(In Thousands)

	FY 87	FY 88	FY 89
Active Duty Military	606.9	598.7 (-8.2)	600.6 (+1.9)
Civilian			
Direct Hire	250.3	251.7 (+1.4)	252.9 (+1.2)
Indirect Hire	13.5	13.4 (-0.1)	13.6 (+0.2)
Selected Reserve			
AFR	79.6	83.3 (+3.8)	85.5 (+2.2)
ANG	113.4	116.7 (+3.3)	117.7 (+1.1)

PERSONNEL COST*
(Then Year $ Billions)

	FY 87	FY 88	FY 89
Active Duty Military	19.6	19.9	19.9
Civilian**	5.9	6.1	6.2
Selected Reserve			
AFR	.6	.6	.6
ANG	.9	1.0	1.0
AF TOTAL	27.0	27.6	27.7

*Does not include personnel support (medical, training, 50% BOS, recruiting)

**Includes Active, Guard and Reserve but excludes Industrial Fund portion

DETERRENCE

Mr. ALDRIDGE. Thank you, Mr. Chairman.

The fundamental principle of our national strategy remains deterrence, to deter war at all levels of conflict.

Over the past 6 years we have implemented the strategy of deterrence through force modernization and improved readiness. In at least three areas, we have made remarkable progress in addressing defense priorities consistent with the President's National Security Strategy Report for 1987.

In the strategic arena, the Air Force brought into the inventory the Peacekeeper intercontinental ballistic missiles and the B-1B bomber. Both of these systems significantly enhance the deterrent effect of our strategic Triad, bringing us the first new ICBM in some 15 years, and the first new bomber in a quarter century.

B-1B

Mr. Chairman, I flew the B–1B at Dyess Air Force Base, and I have discussed the alleged problems with the flight and maintenance crews there. I am convinced that those who would criticize the airplane are simply not encumbered by the facts on its performance and its capability.

We have had problems with the ECM, the electronic countermeasures equipment, but those fixes are underway within the cost cap of $20.5 billion. The B–1B is an outstanding aircraft, one which will perform its assigned mission in national defense for decades to come.

CONVENTIONAL FORCES

To reinforce our conventional deterrent, we've applied a strategy of forward deployment of modern tactical fighter forces to potential combat theaters in Europe and the Pacific.

We have seen the evidence that the Warsaw Pact forces, in response to modernized and upgraded NATO forces, have changed their air strategy from a purely offensive posture to one that now considers the need for an initial air defense campaign.

We have built up our spare part stocks and ammunition inventories. We have also increased combat readiness with expanded and more realistic training.

READINESS AND SUSTAINABILITY

This investment in readiness and sustainability has produced dividends in improved combat capability.

Deterrence also requires an ability to deploy forces, equipment and people rapidly to points in the world where our national interests are threatened. We have made considerable progress here as well as in procurement of the C–5B.

ACCESS TO SPACE

Our national strategy includes assuring access to space, and ensuring passage through space for our systems in support of all of our forces.

Through our space launch recovery plan, we have established procedures to avoid future problems with the Titan solid rocket motors. We initiated procurement of a shuttle-sized Titan IV expendable launch vehicle. We are modifying smaller Titan II space boosters. And we began the development and procurement of a new medium lift booster, the Delta II, for our Global Positioning Satellite systems.

In each of these areas over the past 6 years our Air Forces have been rebuilt in support of clearly defined national strategy goals. Our forces today are consistent with that strategy.

While proud of our record today, I must caution that the future is not without risk. Soviet forces continue to grow quantitatively, and improve qualitatively. Almost daily we read and hear reports of challenges at the other end of the conflict spectrum, the growing danger from international terrorism.

BUDGET TRENDS

In this complex world, any reduction in our own spending for defense increases the risk that we will actually have to face that threat. If the budget trend of the past 3 years continues, the risk is in fact likely to increase.

To be frank, I am very concerned about the actions reported to date that indicate further deep cuts in the President's budget proposal for fiscal year 1988 are likely.

As Secretary Weinberger has noted, the budget levels currently under consideration virtually ensure that personnel and readiness accounts will be hit hardest because they represent the greatest share of first year outlay spending.

If such cuts are made in our fiscal year 1988 request, we will have to cut operating funds. That means reduce flying hour programs and that would affect our readiness.

The last thing I would do, however, would be to cut personnel compensation and support programs. If they are the kinds of reductions suggested in current reports, then it may be time to look at our mission list, to see which missions are less important than others. Additional program cancellations and base closures are among the options we must also keep open.

SPECIFICS OF 2-YEAR DEFENSE BUDGET

I would like now to turn to a few specifics of the 2-year defense budget and the fiscal year 1987 supplemental request currently before this 100th Congress.

PEOPLE PROGRAMS

Our first concern is people. Because of the support of the members of this committee, of the entire Congress and the American people for the President's programs over the past 6 years, we have been able to ensure modest salary increases, improve housing and other quality-of-life factors, provide quality equipment and improved working conditions, all contributing to an improved quality of our people.

While the record of the past 6 years is good, we must keep it up. Failure to do so increases the risk of losing these experienced, motivated and skilled people.

In recent months we have seen indications, and particularly with our rated force, of an increase in numbers leaving after the initial service obligation.

People are, and will remain, our single most important resource. Our fiscal year 1987 supplemental request will bring our funds to the level needed to pay the bills for military pay, civilian employee retirements, and overseas station allowances, as programmed and authorized last year. That will help us attract and retain the quality people we need now and into the 21st Century.

STRATEGIC MODERNIZATION PROGRAM

Second, we must complete the President's strategic modernization program, including procurement of the 100 B–1Bs, and proceeding with the advanced technology bomber.

We need Peacekeepers, and our budget supports development of the rail-garrison basing mode. We have also asked for funding to develop the small ICBM consistent with congressional direction.

The risk in the strategic modernization lies in three areas. First is the increased risk to our strategic deterrent if we do not complete the bomber and ICBM modernization programs.

Second, we must continue modernizing our tanker force to meet the minimum strategic and tactical tanker requirements identified by the commanders in chief.

Another risk lies in strategic defense. In particular, as managers of a major share of the Strategic Defense Initiative research programs, the Air Force supports that effort as essential to long-term protection of our Nation.

I think it makes sense that the Department of Defense should spend about 1 to 2 percent of its budget searching for new, nonnuclear defense solutions to the deterrence of nuclear war.

As a third part of our modernization effort, we are continuing our aggressive program to ensure our readiness to meet any threat to our national security.

We have been successful over the past 6 years in achieving new levels of combat capability and readiness, a primary concern of the unified commanders.

Your continued support in approving the fiscal year 1987 supplemental will help us maintain that record of improving readiness and sustainability.

AIRLIFT

In airlift, despite our additional capacity, we are still behind the requirements of the commanders in chiefs to deploy, employ and resupply U.S. combat forces. Completing the C–5B procurement, and initiating the buy of the C–17 will move us well along to addressing that requirement in a way that is most responsive to the needs of the combat commander in the field.

TACTICAL MODERNIZATION

In tactical modernization, despite the advances which have prompted a strategic revision of Eastern Air bloc plans, we have had to revise our modernization plans.

Thus for the interim we have deferred our goal of building to 40 tactical fighter wing equivalents, and are now planning in this budget period, to work toward a modern force of 37 wing equivalents. This, it is important to note, is an area in which we are not meeting the field commanders' needs.

AMRAAM PROGRAM

The challenge, when we are compelled to meet our national security goals with a smaller force structure, is to make sure those forces are combat ready and as capable as possible. For that reason, we must aggressively proceed with the continuation of the F-15 and F-16 to replace our aging tactical aircraft and the AMRAAM program, a missile that has proven highly successful in its testing program, and promises significant force enhancement for our tactical air forces.

To stay ahead of Soviet technical advances, we must have the advanced tactical fighter. In fact, the advanced tactical fighter and AMRAAM are essential, particularly if we are constrained to remaining within a smaller than desired force structure.

ACCESS TO SPACE

In ensuring access to space, we must continue our program to modify and build launchers which will ensure a flexible, robust launch capability into the future.

We must also, however, redress the significant imbalance in antisatellite capability. We have tried, with congressional restrictions, to offset a clear imbalance with the Soviet Union in this important area.

The unilateral moratorium must be lifted. Today it benefits no one but the Soviet Union.

SPECIAL OPERATIONS FORCES

Finally, we have fully funded special operations force requirements for three primary theaters simultaneously, in part at the expense of our force modernization. To fully support our budgeted fiscal year 1988 and 1989 program, the fiscal year 1987 supplemental also included funds in support of the special operations force buildup.

Mr. Chairman, over the past 6 years, we have balanced force modernization with readiness and sustainability, procurement and investment with operations and maintenance.

As a result, today's Air Force is the best manned, best equipped, and best prepared to support our national security objectives in our history. That fact is due in no small part to the work of this committee.

COMBAT CAPABILITY IMPROVEMENTS

We must continue to make improvements to our combat capability. Unfortunately, the budget reduction trends over the past 3 years, and those indicated for fiscal year 1988, if continued, could result in the undoing of all the progress we have made in the past 6 years.

Mr. Chairman, we need your support, and I look forward to the questions after General Welch's comments.

Mr. Chairman, if it is OK with you, I will turn to General Welch who will make a short statement at this time.

Chairman STENNIS. All right. Senator Stevens, did you wish to be recognized in view of your time constraints?

Senator STEVENS. Thank you, Mr. Chairman. But I think I would like to listen to the General's statement as well.

Chairman STENNIS. Very well. General Welch, we are happy to welcome you here. You have a fine, illustrious career record in the Air Force. Please proceed now.

We may have to interrupt you, but we will try not to cut you off.

CHIEF OF STAFF, U.S. AIR FORCE

STATEMENT OF GEN. LARRY D. WELCH, CHIEF OF STAFF, U.S. AIR FORCE

SUPPORT FOR UNIFIED AND SPECIFIED COMMANDERS

General WELCH. Thank you, Mr. Chairman.

In the interest of time, I will simply supplement some of the comments that Secretary Aldridge has made to highlight our support for unified and specified commanders, who, of course, are the users of the combat forces that we are building with this budget.

These requested programs will continue to enhance the Air Force contribution to their warfighting capabilities, while maintaining a balance between the needs of nine unified and specified commanders, and a balance between the need for readiness today and the modernization that will provide readiness tomorrow.

STRATEGIC NUCLEAR DETERRENCE

I will just briefly highlight a few specific areas of Air Force support for those six highest priorities. Looking first at strategic nuclear deterrence, the commander-in-chief of the Strategic Air Command has identified the greatest shortfall in this particular mission area as the ability to target Soviet hardened ICBMs and command and control facilities.

Peacekeeper ICBM warheads provide the most effective and lowest cost approach to filling that shortfall. We need to move ahead to full deployment of Peacekeeper missiles. We can then build on that foundation with Trident II D–5 missiles, small ICBM's, and the new bomber; weapons to provide the most capable and most credible strategic deterrent for us. Any other approach costs more and provides less capability.

To comment briefly on the bomber leg of the strategic Triad, the Secretary has already discussed the progress of the B–1B. Let me simply say it will serve as our primary penetrating bomber in both conventional and nuclear roles until the ATB is developed and fielded.

The ATB is the right solution for the penetrating bomber from the mid-90's well into the 21st century.

AIR REFUELING

CINCSAC and theater commanders have also identified air refueling support of Air Force, Navy and Marine Corps aircraft as a major shortfall. We continue progress to fill that shortfall, but, unfortunately, budgetary constraints have slowed the expansion of our air refueling capability.

TACTICAL MISSION AREA

In the tactical mission area, the Air Force provides air component forces to each of the unified commanders with theater responsibilities, and we are committed to ensuring that those forces are trained and equipped to support joint operations.

That requires flexible tactical forces capable of supporting land and sea operations across a spectrum of conflict. To meet those requirements, present and future, we use a threefold approach.

First, we strive to get the most from existing forces by providing them with adequate logistic support. Where just flying more sorties with existing capabilities will not meet the threat, we leverage our past investment with cost-effective modifications and upgrades to existing systems. And where we have reached the limit of that approach, we face up to the investment required to exploit available technology to produce the most effective and affordable new systems.

And we are using a combination of all three approaches to provide the spectrum of air support to the AirLand Battle, and naval operations, in all theaters.

We have made substantial progress, and this budget request would continue that progress.

READINESS AND SUBTAINABILITY

Investments in readiness and sustainability and conventional forces have substantially increased the number and quality of combat sorties available to field commanders.

For example, we can now generate 90 percent more combat fighter sorties than in 1981, and each of those sorties will be more effective in supporting the AirLand Battle and naval operations. However, full sustainability with preferred munitions is a high priority of all the CINC's, and we will continue to work toward that goal as the budget permits.

Upgrades of existing fighter, tanker and special operations aircraft designs have greatly improved systems capabilities at much lower costs than developing new systems.

For example, we meet the need for around-the-clock interdiction by producing a variant of the F–15, the F–15E. And that modified aircraft, equipped with new air-to-surface munitions, will perform that vital mission for years in the future. Similarly, we can for some time to come, meet close air support requirements with variants of existing aircraft, or those now in production.

IMPROVED AIR SUPERIORITY

However, the need for improved air superiority capabilities to meet the air threat cannot be satisfied by variants of existing aircraft. Only a high performance air superiority aircraft, using Stealth technology and first-shot weapons, can deal with that threat.

And the Advanced Tactical Fighter, our single new fighter development program, would be the keystone to that future tactical support in all theaters.

All theater commanders agree that credible conventional deterrence will require greatly expanded strategic airlift capability. Secretary Aldridge has discussed our efforts to improve that. Let me simply say that only the C–17 can provide the needed further improvement in airlift, with the ability to deliver U.S.-based combat forces directly to the airfield specified by the theater commander.

SUPPORT OF THEATER OPERATIONS

The theater CINCs have also identified a need for expanded special operations forces to support theater operations, and we are fully supporting that requirement.

To continue progress toward meeting all the needs identified by the unified and specific commanders, we have very carefully phased development and procurement to provide economic production rates of needed systems; for example, we are buying only two types of fighter aircraft. We are sustaining for the seventh year the economic multiyear production of the F–16. We buy the higher capability F–15E at a lower rate, but still at an economic rate.

And F–15 production will wind down as we ramp up the Advanced Tactical Fighter, while F–16 production will continue at an economic rate.

AIR-TO-AIR MISSILES

The same is true for air-to-air missiles. The Air Force and the Navy are jointly maintaining a warm production base for the AIM–9 and the AIM–7 until the AMRAAM enters high rate production.

We will then produce the AMRAAM at economic rates for both services for years to come.

AIRLIFT

In the airlift area, we delayed C–17 development to provide funds for economic C–5B production rates. We will now turn to the C–17 as our single airlift aircraft production line.

The B–1B is being produced at a maximum rate to minimize cost. [Deleted.]

It would certainly be a lower risk approach to have more production lines, but we get more for our dollars with faster procurement of each system, and we intend to continue that approach.

BUDGET CUTS

Taken as a whole, the Air Force request, crafted in coordination with theater commanders and their supporting component commanders, will provide the unified and specified commanders in chief with the best air support attainable within available resources.

BUDGET CUTS

However, potential cuts to the fiscal year 1988 budget threaten to arrest or even reverse the progress of recent years. I am particularly concerned about the House Budget Committee proposal which would be a reduction of $23 billion in budget authority and $16 billion in outlays.

A reduction of this size would represent a real decline of nearly 5 percent on top of the decline of 7 percent over the past 2 years.

The difficulty is compounded by the very high ratio of outlay cuts to budget authority cuts. This fiscal mismatch will require that personnel and readiness accounts carry the burden of appropriation cuts to comply with the outlay targets; to reduce outlays by that amount, that is, by $16 billion, would require program reductions of $40 billion or more.

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I know this committee appreciates the seriousness of those proposed reductions, and with your help, we will continue progress in support of a coherent national military strategy.

I would be pleased to join the Secretary in responding to your questions, sir.

Chairman Stennis. All right. We thank you for your statements.

We are glad now to yield to the Senator from Alaska. He says he will need about 5 or 6 minutes.

OUTLAY LEVELS

Senator Stevens. I thank you, Mr. Chairman.

I am worried about the Catch-22 in the budget process right now. As I see it, the people in both the House and the Senate who are working on the budgets refuse to acknowledge the commitments that were made by past years' authorizations, and have mandated such a low budget outlay figure, that it will necessitate cutting some of this year's budget authorization level in order to accommodate that level which they have produced, which is 282 in the House, and approximately 283 in the Senate.

I am pleased to see that Senator Nunn in the Armed Services Committee recognizes the problem, and I hope that this subcommittee and full committee will join with them in trying to educate everyone about outlays.

But if we maintain this low outlay level, have you taken a look at what we have to cut from authorization in order to get to that low figure?

Mr. ALDRIDGE. Senator Stevens, Caspar Weinberger has provided a list of the potential types of cuts across the Department of Defense.

And a lot of them, most of them, are in the Operation and Maintenance accounts, personnel, readiness, flying hours, those kinds of things which will have to be cut, including ongoing research and development programs as well as procurement programs.

Senator STEVENS. I question your desire to go ahead with the single warhead ICBM at this time at the expense of continuing procurement of conventional aircraft. That's a judgment that you've made, and we can argue with that.

How much is that in the first year of the new missile?

Mr. ALDRIDGE. $2.2 billion.

Senator STEVENS. You won't spend that much in 1988?

Mr. ALDRIDGE. No, sir. Most of that is in research and development. About half of it will be spent in 1988.

Senator STEVENS. So that the problem is that if people support a concept of lowering the outlay level, it will require cutting readiness, won't it, this year in order to accommodate that outlay?

Mr. ALDRIDGE. Yes, sir. The only accounts that spend rapidly in the first year are the Personnel and Operation and Maintenance accounts.

Research and development spends about 50 percent, and procurement is something in the 10 to 15 percent level the first year

So if you are going to get outlays, you have got to go into the readiness accounts.

C-17

Senator STEVENS. Now, Mr. Secretary, there was a time, and I think members of this committee, including my good friend the Chairman will remember it, when the C-17 was hanging in the balance.

All of the rest of the Congress didn't want it. This committee insisted that it keep going. It is now ready to go ahead, isn't it?

Mr. ALDRIDGE. Yes, sir.

Senator STEVENS. Can you just remind us, for my friends, generally here, what will it mean if we don't have the C-17 in terms of outsized airlift?

Mr. ALDRIDGE. Well, sir, the C-17 is a proven technology airplane that is much more fuel efficient, less manpower intensive, and much more capable of delivering outsized cargo into airfields forward and closer to the areas where they are needed.

We can take a C–17 directly from the United States into a smaller airfield in Europe and deliver the equipment much more rapidly to the places where they're needed, rather than having to fly into a major airfield, offload, onload another aircraft to fly it or transport it by road or rail into the combat area. It is a much more capable aircraft for delivering that equipment closer to the combat area much more rapidly and much more efficiently in terms of manpower and operating costs than the current aircraft—the C–5B and the C–141.

Senator STEVENS. But assuming, as I do assume, that we are almost at the point where we are going to get an agreement this year on the INF area as far as arms control, it appears to me that this is the critical time now for the C–17. It is a conventional capability that we now lack. We don't have the sealift.

We must have it. I am not sure you are carrying the message to the Members of the Congress as to how vital the C–17 is. Now, I understand your concept on the small ICBM, but they're roughly the same price.

And from my point of view, the priority ought to be in conventional capability right now, rather than that small ICBM.

Would you disagree with that?

Mr. ALDRIDGE. No, sir. We have said in our budget preparation, the fiscal year 1988 budget, as it has been presented to Congress, we supported the C–17 as well as the small ICBM.

However, if the budgets are going to be reduced below the levels that have been requested for fiscal year 1988, the priorities for those programs would have to be reassessed.

END STRENGTHS

Senator STEVENS. I'm going to stay within the time limit I gave the Chairman. But many people believe that we can get to some lower outlay figures by reducing end strengths.

Your budget already proposes reducing military end strength by 6,000 positions, and civilian employment by 2,800 positions in this period of this joint 1988–89 budget, doesn't it?

Mr. ALDRIDGE. Yes, sir. We will reduce military by more than 6,000, but civilian strength will increase by 2,800.

OUTLAY RESTRICTIONS

Senator STEVENS. So the outlay restrictions that would be imposed on this committee by the budget resolution would require even deeper cuts?

Mr. ALDRIDGE. Yes, sir and in force structure, which we have already reduced.

As you know, we have reduced our goal by three tactical fighter wings—from 40 tactical fighter wings to 37, which is obviously the heart of the Air Force.

We have already taken drastic cuts below what we think the CINC's require in the tactical fighter area, and we would have to go even below our current plan if we had to take cuts of this magnitude.

Senator STEVENS. Well, I think we are sending our allies inconsistent signals. We are telling them that the NATO countries should have a goal of at least 3 percent real growth. And with the budget resolutions that are before the Congress now, we would have a minimum of a 5 percent negative real growth.

Mr. ALDRIDGE. That's correct.

Senator STEVENS. Eight percent off the goal we've demanded from our NATO allies.

Mr. ALDRIDGE. And reductions from the last 3 years, in the same direction. This will be the fourth year in a row of net negative growth in the defense budget.

Senator STEVENS. I might say, not 8 percent below what the Senate level would have been. We have had to battle each year to maintain that, but this year it appears that the budget resolutions are setting more stringent parameters on the Congress.

And most people don't understand, Mr. Chairman, that the outlay figure does not apply to the House.

The outlay figure only applies to this subcommittee in the first instance. I think that is going to be a terrible problem for us.

Thank you, Mr. Chairman.

Chairman STENNIS. All right, thank you, Senator.

As I understand, you had not finished your testimony, General?

General WELCH. I finished.

Chairman STENNIS. Oh, you have finished? All right.

We call on the Senator from Louisiana, Senator Johnston.

Senator JOHNSTON. Mr. Chairman, thank you.

I would like to extend a personal welcome to Secretary Aldridge. In my home town of Shreveport, we attribute a large part of his considerable skill, ability and knowledge to that which he acquired while living in my hometown.

He is one of our better products down there.

Mr. ALDRIDGE. Thank you, Senator.

Senator JOHNSTON. I hope you still vote down there, or vote right, I should say.

PEACEKEEPER

Secretary Aldridge, I want to echo what Senator Stevens has said about the Peacekeeper. I was not a supporter of the Peacekeeper in its previous incarnations of putting it down the Minuteman holes, silos, because I thought it was very vulnerable there.

But I think this rail-garrison system has great promise, and I hope the Air Force will continue on its program, and will find out that it turns out to be as cost effective and as safe and as apparently appropriate a mode of deployment as it seems to be now.

That does continue to be the case, doesn't it?

Mr. ALDRIDGE. Yes, sir. We are placing very high priority on the Peacekeeper program. And as you know, the development program has been highly successful, probably one of the most successful development programs in the Air Force for the missile itself.

And we are very enthusiastic about the rail-garrison program, and think that is going to be the right way to go. And we are going to fully support it.

It is a very high priority in the Air Force.

Senator JOHNSTON. Well, I hope you will continue to keep us apprised on a week to week or at least a month to month basis on progress on the program.

Because as far as I am concerned, it is going to be very difficult to justify both the Midgetman and the Peacekeeper. We have just got so many demands on us with so little budget authority to go around.

Even if we have some new taxes, and the budget resolution out of the budget committee provides for $18 billion in new taxes, it still as you know provides for what amounts to cuts in defense, probably imprudent cuts.

Now whether or not we can sustain that $18 billion, whether we can sustain the increase in the Gramm-Rudman targets, are very open questions.

As you know, the Administration opposes both. So it looks to me as though, at best, we're going to keep what we've got in that budget resolution, and at worst, we are going to lose more in defense.

And in either event, it is going to be hard to justify both the rail-garrison and the Midgetman.

I think at some point the Air Force and DOD needs to begin to make choices on that. I know it is sort of a high risk thing, because you have got some people who support only one and not the other, and you might end up having neither, and I know what the problem is on that; you would like at least one or the other.

But in any event, I think we are going to need to make—this committee, I think, is going to have to make a choice.

KC-135 RE-ENGINING

Now, Secretary Aldridge, getting to the KC-135 re-engining, is it a qualified candidate for multi-year procurement? And if so, what savings do you project both for the acquisition and operation and support for a multi-year procurement of 50, 60 and 72 kits per year for the remainder of the KC-135 fleet, both for the active and reserve aircraft?

Mr. ALDRIDGE. Sir, we'd have to give the details of the answer for the record on that. But it is a candidate for multi-year. We did consider it for multiyear a couple of years ago.

Unfortunately, because of the budget pressures, it was one of the programs we had to scale back in its rate to provide for the total balanced budget that we try to present to the Congress.

We would like to see that rate increase beyond the 36 kits per year that we currently have. And we have noticed the House has provided funds to increase it up to 50.

It would be, in fact is, a multiyear candidate at an efficient production rate. We will provide the specific answers for the record, if that is OK with you.

Senator JOHNSTON. Yes, that would. But it would definitely be a candidate?

Mr. ALDRIDGE. Yes, sir. In fact, again, we have looked at it in prior years as a candidate, and unfortunately, it was turned down as a candidate because there was still some question about the stability of the program.

And of course as you know, the more multiyear programs we have, the less budget flexibility we have to adjust when we take the kinds of cuts that are projected. Also, there was some consideration that we had perhaps too many programs in the multiyear category, and we'd reduce our flexibility. That was taken into consideration at the time the KC-135 re-engining was a candidate for multiyear and was turned down.

[The information follows:]

KC-135 MYP SAVINGS

During the FY 88 President's Budget preparation, the Air Force was forced to reduce the number of KC-135R kits procured from 50 to 36 annually for purely fiscal reasons. This was a difficult decision which required weighing the program against the requirements of other mission areas and consideration of all factors in the current fiscal environment.

The Air Force submitted the KC-135R program to OSD for multi-year procurement [MYP] consideration in November 1986 along with six other candidate programs. However, the program was not selected for MYP by OSD since a buy of at least 50 kits is required to make a multi-year procurement effective and would consequently require additional funding above the FY 88 President's Budget. If the procurement level is increased to 50 or more kits per year, a MYP could be extremely advantageous to the Air Force.

Estimated savings of a 50 kit MYP over the current annual buy are approximately $965M with the potential of $1.2B, given favorable negotiations and stable interest rates.

For a 60 kit MYP over the current annual buy, savings are approximately $1.1B with the potential of $1.4B.

For 72 kits MYP potential savings are approximately $1.4B with the potential of $1.7B with favorable negotiations and stable interest rates.

Although we have only a limited data base for KC-135R operations and support costs, we are confident that significant savings can be realized. Using FY 86 as a base line, and assuming stable flying hour requirements, estimated total operations and support savings may range from approximately $600M with a 50 kit per year multi-year procurement to approximately $700M with a 72 kit per year multi-year procurement. Assuming a fully modernized force with no break in production, these savings would be cumulative through the year 2000.

PAY COMPARABILITY

Senator JOHNSTON. All right. Now, Mr. Secretary, on page 2 of your statement you say that military compensation lags behind the private sector by 9.4 percent. But you also say that comparability gap for civilian workers last year was almost 24 percent.

Now you are requesting 4 percent for the military and 2 percent for the civilians?

Mr. ALDRIDGE. Yes, sir.

Senator JOHNSTON. Can we really justify that? I tell you what my concern is, not only in the Air Force but across the board, we have really been savaging our civilian civil service, which I think is the backbone of any government.

It has become very popular to bureaucrat bash, and I think morale is low in many areas. Expertise is really beginning to be lost, and I think we have really hurt ourselves.

I think the next president needs to come in with a new program to get more morale and better—well, to restore to the civil service some of the psychic income they used to receive. Because right now, so many candidates, and it includes not only this President but the last one, always wanting to run against Washington, and that includes running against the bureaucrats, they sort of downgraded the bureaucrats.

So how can we really justify paying them less than military people when they are further behind?

Mr. ALDRIDGE. Well, sir, I think the assessment is that this pay raise would not put them any further behind. Obviously we cannot afford the raises in our budget that would allow them to catch up, but the assessment was that in the military arena the 4 percent would allow the military to have an adequate pay raise, essentially keep up with inflation, but it would not permit us to catch up to the comparable civilian sector.

And that's just one of those things called affordability that we had to make those judgments on. In the civilian area, the assessment was, that a smaller raise would give the civilians an increase that would basically not let them fall further behind.

RECRUITMENT AND RETENTION

Senator JOHNSTON. Well, let me put it this way. Is recruitment and retention in the civilian force a less serious problem than it is in the uniformed service?

Mr. ALDRIDGE. Yes, sir. I think the all volunteer force and the problems that deal with the military make it very difficult to bring people into the military. More difficult than in the civilian force, because military personnel are going to move every so often and are going to be put into areas that are threatening to their life and well-being.

And it is an assessment that the pay raise of 4 percent would allow us to continue to recruit and to retain those quality people in the military.

It is not as difficult to recruit civilians. The requirement for numbers of people are not as large. But I would say——

Senator JOHNSTON. Testimony, if I may interrupt, from the other services that recruitment and retention has never been as good; the quality of the service has never been as strong in the uniformed services as it is now.

Mr. ALDRIDGE. That's correct. But we have got to keep it that way.

Senator JOHNSTON. Then it is not correct to say it is a problem. You want to keep it good?

Mr. ALDRIDGE. Yes, sir. It is more difficult to recruit military than it is to recruit civilians. But we want to keep the trends of the quality people that we have.

And if you travel around the Air Force bases around the world, and inside the United States, and talk to the young people, you will see the outstanding dedication and quality of the people we have got.

And what we are trying to do with our people programs is to keep it that way, not retrench back to the periods where morale was low and retention was low and recruiting was difficult.

We are now running at 99 percent recruiting for high school graduates in the Air Force. We are very proud of that and we want to keep it that way.

Chairman STENNIS. Would the Senator yield to me just a moment?

Senator JOHNSTON. Yes certainly.

MORALE

Chairman STENNIS. What time on the calendar do you refer to when you say, back when morale was low?

Mr. ALDRIDGE. In the mid- to late-1970's when we had problems in retention. In pilot retention, for example, we were losing three out of every four of our pilots in the 6- to 11-year category.

You know the problems that we had. Our people were afraid to wear or would not wear their uniforms in the streets of our cities. The problem of retention and recruiting was more difficult for us.

We had problems in our weapons systems and in readiness. We could not modernize as fast as we wanted, when the budgets were extremely low, we had problems across the board. But now we're seeing cases such as disciplinary actions against our people are at an all time low. We find that we're being absolutely intolerant with regard to drug abuse.

Chairman STENNIS. All right, thank you. Not cutting you off, but he had yielded to me.

Thank you.

RETENTION

Senator JOHNSTON. Not getting many of them leaving the service to go back to the farm, I guess, these days.

Mr. ALDRIDGE. Retention is extremely good. We are seeing, however, since we are on the subject, a little kind of a yellow light flashing on pilot retention. It's starting to come down. The retention of our pilots is starting to come down as the airlines are hiring.

And it is kind of a caution sign to us. We have got to do something about retaining our pilots.

Chairman STENNIS. Well, I think it was worse than you fellows realized it was at that time. I say that based on visits I made out in the field where they were.

It is a serious matter. It frightens me in a way. And I rejoice with you that you are having such a better condition. I do not know that I am fully convinced you need as many men as you have, but you have got your quality built up.

All right, thank you for yielding to me.

Senator JOHNSTON. And I think that quality has never been as high. It is easier to see, I think, in the Army than in the Air Force, because discipline is so much more important and observable in the Army than it is anywhere else.

At Fort Polk, Mr. Chairman, you can really tell the difference. You know, in the post-Vietnam days, the hair was long and the discipline was lax. Now, they're smart and salute.

If I may go into just one more subject here, Mr. Chairman.

Chairman STENNIS. Certainly.

SDI DEPLOYMENT

Senator JOHNSTON. Secretary Aldridge, you alluded to SDI in your statement. Frankly, it is a little bit hard to find who—you know, the administration does not always speak with one voice on SDI. I don't know if you're fully aware of that or not, but certainly before this committee, we'll have the Secretary saying one thing, and the deputy secretary saying another.

What in your view is the current status or the current plans with respect to a near-term deployment, and by near-term, I mean early to mid-1990's?

Mr. ALDRIDGE. Sir, we only manage certain programs for the SDI activity. That is under the general direction of General Abrahamson, and he reports directly to Secretary Weinberger. We in the Air Force are not in the policymaking role with regard to SDI.

But it is my understanding of SDI that we are in a technology program. We have made no decision on early deployment. There are considerations that, if the technology continues to progress at the present very satisfactory rate, that option does exist. But the decision would have to be made at some later time as to the precise characteristics of this initial deployment or early deployment. I guess you could call it that.

And I guess in some cases it is called a phased deployment, which would be the case in any event, because you do not launch a large number of satellites and provide all of the equipment in the field overnight. It has to be done over a period of time, and it will by necessity have to be phased.

The question is when can such a deployment start. There are people who claim that the progress of the technology is such that it could start as early as 1993 or 1994, but that decision has not been made. All I know is that we are working on the technology programs that could conceivably give us the information necessary to make such a decision in the very near future.

But that is a presidential decision and what is in the national interest at the time.

Senator JOHNSTON. Thank you, Secretary Aldridge. I appreciate your testimony.

Thank you, Mr. Chairman.

Chairman STENNIS. Thank you.

Senator Proxmire, do you have any questions?

ASSESSMENT OF SOVIET MILITARY PERSONNEL CAPABILITIES

Senator PROXMIRE. Thank you very much, Mr. Chairman.

First, I would like to congratulate you very much on your opening statement, particularly your emphasis on the good things. You know, people come before this committee and we are an Appropriations Committee, and they are always asking for more money. That is understandable.

But you have a good and very encouraging report on the personnel in the Air Force and on the quality of the personnel, the retention of personnel, the training of personnel, and so forth. I think that is probably the most important element and the most neglected in discussion, since we always concentrate on procurement.

If you have competent people, even though your equipment may only be on par with the other side, then you have an advantage. And even if it is defective, sometimes if you have the right people with the right kind of training and skill, you can make an enormous difference.

What I would like to ask you in connection with that is this. You point out how important it is to maintain adequate pay and I agree with that; and that you have competition from the airlines and so forth that are burgeoning for your qualified personnel.

SOVIET PILOT TRAINING

My question is, how does this compare with the Soviet Union? We are constantly reminded of the fact that to a considerable extent our military force is justified by the fact that we are up against a very strong and aggressive adversary or potential adversary, and we have to be able to match or surpass what they do.

It is my understanding—and I hope you can correct me if I am wrong—that the Soviet Union's pilots do not have the flight time that ours do. I do not know about the training. I would like to find out from you how that compares, or the retention of their personnel compared to ours.

Could you give me an understanding of how we shape up in that respect?

Mr. ALDRIDGE. Senator, it would be very difficult for me to give you a net assessment of the capabilities of the tactical forces in an unclassified way. I would have to go into the classified area, the actual capabilities of the fighter aircraft and so forth. We could do so. We could give you a briefing that is classified.

Senator PROXMIRE. Well, I am not talking about that sort of thing. And you are absolutely right, I should not ask anything that would require a classified answer. On the other hand, it seems to me you could give me a general understanding, particularly with respect to flight time. I did not know that that was classified.

Mr. ALDRIDGE. Let me say that General Welch probably can give you more details than I can.

General WELCH. I think there is no question about the superiority in the training and capabilities of the U.S. pilots. It is a product of the society. The fact is that being a good combat pilot requires the ability to assess the situation rapidly, to react rapidly, to think for yourself, and all those kinds of characteristics that tend to come from a free society.

We observe closely the relative approaches to training, the two approaches to training between this country and in fact our western allies and the Soviet Union. And as you would expect, their training is much more constrained, under the very close control of ground radars, et cetera. It does not lend itself all that well to the fluid demands of an air-to-air battle.

However, their retention is near perfect. They have them for life. They are in for life. They are in until the Soviet air force decides they do not want them. So their experience levels are quite good.

Senator PROXMIRE. What I have had in mind particularly is the dramatic, where the Israeli air force showed its enormous superiority over, it seems to me, the Syrian air force. The Israelis were flying, I think, some American designed planes and the Syrians were flying Russian planes.

It is a something like 70 to nothing record over a period of time when they had hostilities between the two countries. Although the quality of the aircraft was important, the emphasis was on the remarkably high level of training of the Israeli pilots and the very high standards of selection of those pilots.

U.S./ISRAELI AIR FORCE STANDARDS

I wonder if we are in the same ballpark with the Israeli pilots. Are we at that standard or is that higher than ours?

General WELCH. I think that the standards of training are very similar. The Israelis have a little more selectivity for their fighter pilots, in that they have a very careful and detailed screening process, so that only a very few end up in those first line fighters.

But clearly the gap between the Israeli pilot and, say, the Syrian pilot is much wider than the gap between the U.S. pilot and the Soviet pilot, in that the Soviet pilot is considerably better than that. He is trained better than that.

I think probably more worrisome than the numbers that we look at—and I agree with your implication that stacking up numbers of fighter airplanes on both sides doesn't tell you very much about relative combat capability—probably the thing that is more worrisome to us is the trend.

As I said at the outset, clearly our training is superior to Soviet training, but Soviet training is getting better, just as you see Soviet aircraft beginning to look a lot like U.S. aircraft. The Soviet Fulcrum looks so much like an F–16 that you can hardly tell them apart at first look and the Soviet Flanker looks so much like the F–15 you can hardly tell them apart.

What I am saying is that the Soviets are very good at watching what we do and copying what we do. And they are doing the same thing in training, gradually improving the training of their pilots, although it is not nearly as good as ours at this point in time.

Senator PROXMIRE. You also put great emphasis, however, on the difference between the two societies and the fact that our people seem to be more self-reliant and freer to feel that they have to make their own decisions, they are more independent and more conscious of that.

SEQUESTERING FISCAL YEAR 1988 FUNDS

Mr. Secretary, would you tell the committee what would happen to the Air Force budget if the Congress was forced to sequester DOD funds this year to meet the Gramm-Rudman $180 billion reduction target? I am talking about 1988.

According to CBO, a sequester this year would mean a 14-percent cut in defense programs and outlays. For the first time, there would be no flexibility in how this reduction would apply. Every account, including manpower, R&D, procurement, and O&M would be cut 14 percent.

Mr. ALDRIDGE. Yes, sir. The other factor is the discussion that is ongoing in the House and Senate Budget Committee regarding these major cuts that tend to be very outlay-oriented, much more so than budget authority—we discussed that before you arrived. That will have a major impact upon readiness and the operations of the Air Force if we have to take cuts of that magnitude.

Senator PROXMIRE. Well, obviously it will have a general effect. Can you be more specific than that?

Last year we were told, for example, that if we made some cuts, not necessarily in the Air Force but elsewhere, we would lose a substantial significant part of our Navy, Army, and so forth.

Mr. ALDRIDGE. Yes, sir. We would have to take force structure. We would have to cut the personnel accounts. We would have to cut the readiness accounts. We would have to cut the sustainability accounts by major factors. And the reason is that the procurement accounts do not spend in outlays as fast as the operation and maintenance accounts.

Senator PROXMIRE. So it would be more than a 14 percent cut, perhaps?

Mr. ALDRIDGE. The way we understand it, if we take the Senate Budget Committee number with the outlay to budget authority, we would have to take a disproportionate share, a higher share of outlays if those kinds of cuts are sustained than we would in budget authority accounts.

Senator PROXMIRE. Do you have a standby plan to make these reductions if called upon to do so?

Mr. ALDRIDGE. Well, sir, we are looking at the possible impacts within the Air Force of those. We do not have a specific contingency plan at this point in time. We would hope that the budget discussions would provide a higher percentage of the budget for at least the Air Force of those cuts, that we would hope that we would not have to sustain that level of cuts after the discussions within the Senate.

Senator PROXMIRE. On this assumption that we do not have to sequester, there still may be cuts imposed by Congress below what the President requested. And if Congress does cut the defense budget, we may have to consider program cancellations.

What specific programs would you recommend be cancelled if, for example, the defense budget is frozen for fiscal 1988?

Mr. ALDRIDGE. Senator, that is a difficult question for me to answer, because you have to tell me what missions that you do not want the Department of Defense to perform. We cannot just say we are going to meet all of our commitments around the world and meet all of our treaty requirements and our defense requirements and we are going to do it with a lower level of money.

Senator PROXMIRE. Well, we obviously look to you for recommendations, and we might very well accept your recommendations. So what would you have us do?

Mr. ALDRIDGE. Sir, I don't have a dollar figure. We have priorities in the Air Force——

Senator PROXMIRE. Well, I am giving you a dollar figure, which is to freeze our defense at the 1987 level for 1988. What would happen? How much would you have to make reductions in programs? Which would you reduce?

Mr. ALDRIDGE. Well, sir, I have no recommendation on particular programs. Obviously, I support the President's budget that has been submitted to the Congress, and hopefully that budget will be approved.

We have a series of priorities if the budgets are cut. Number one, I would not cut our people programs. That would be the last program I would cut.

We must continue with the strategic modernization program. We may have to reprioritize the programs within that. Certainly our Peacekeeper program is one of our highest priorities, along with the B–1. Essentially, the B–1 program is completed. We would have to look at the Small ICBM as the lower priority in those cuts.

How to handle cuts of that magnitude—we would have to go and explore force structure reductions. We have already reduced force structure by three TAC fighter wings. We would have to cut it some more. That clearly is not the right direction.

And we would have to reduce the readiness of those forces to go to combat. And we would have to rebalance our budget across the board to do that.

We have not provided an alternate budget at that level.

TRAINING FLIGHTS OVER NORTHERN WISCONSIN

Senator PROXMIRE. Let me ask you the most important question of all. I understand the Air Force's Strategic Air Command may begin flying strategic bombers over certain parts of northern Wisconsin on training flights. Can you pin down for me how many flights and what kind of aircraft and at what elevation they would be involved?

Mr. ALDRIDGE. It is only an option that is being considered at this time, looking at a range. I do not believe that there are any specific numbers of flights or the frequency of those flights.

Let me check with the Strategic Air Command what their specific plans are and I will provide that answer for the record.

[The material follows:]

FLIGHTS OVER WISCONSIN

The Air Force is developing a proposed low-altitude training route for Strategic Air Command [SAC] bomber crews that overflies parts of Michigan, Wisconsin, and Minnesota. SAC is in the planning stages of gathering essential environmental and socioeconomic data for preparation of an Environmental Assessment of this proposal. This Environmental Assessment began on December 15, 1986, and should be completed by late summer/early fall 1987, at which time a Formal Airspace Proposal will be forwarded to the FAA. This proposed low-altitude route will serve two purposes: (1) allow bomber routing through existing low-altitude fighter-intercept training areas, and (2) provide a low-altitude route closer to K.I. Sawyer AFB, MI; Wurtsmith AFB, MI; and Grand Forks, AFB, ND; allowing shorter duration missions which save flying time and valuable fuel dollars.

SAC anticipates a maximum of 5 flights per day, 5 days a week, 20 percent of which may be during hours of darkness. The types of aircraft anticipated are the B-52 and B-1B, flying at altitudes ranging from 300 to 1,500 feet above the ground. As currently planned, approximately 60 miles of the proposed route will be over Wisconsin, primarily portions of Douglas and Bayfield counties in the northwest corner of the state. It must be emphasized this is a proposed route under study by all applicable federal, state and local agencies.

ENVIRONMENTAL IMPACT STATEMENT

Senator PROXMIRE. I appreciate that very much.

Do you need an environmental impact statement before making those flights? Have you done that?

Mr. ALDRIDGE. I do not know whether we have done that or not.

General WELCH. An environmental assessment, I think, on that particular route is currently under way. But it has not yet been completed.

Senator PROXMIRE. It is underway?

General WELCH. Yes.

Senator PROXMIRE. How is my time holding up? I do not want to take too much time, but I have a few more questions.

Chairman STENNIS. Why do you not go ahead.

Senator PROXMIRE. I thank the Chairman.

AIR DEFENSE INITIATIVE

The Air Force is asking for $55.5 million for its air defense initiative in fiscal year 1988, which represents about a 76 percent increase—76 percent, that is a significant increase—from the $31.5 million in fiscal 1987. ADI is researching defenses against Soviet cruise missiles and bombers and is supposed to complement the Strategic Defense Initiative.

General Rankine, the head of ADI, has said his program's research is geared to deployment in the mid to late 1990's. As I am sure you have seen from news reports, there is this portion of the Strategic Defense Initiative for a near term SDI deployment in the early to mid-1990's.

Is the air defense initiative considering any type of early or near-term deployment of air defenses?

Mr. ALDRIDGE. No, sir. All we have in the program now is a technology effort, looking at a complement to SDI. If we are going to defend against ballistic missiles, it is also appropriate that you provide a balanced defense against airborne targets.

And the technology program is looking at those technologies that would be consistent with SDI. There are no deployment plans. The technology programs that have been laid out are consistent with a mid-1990's type of deployment decision, but there is no specific plan for an earlier deployment for ADI.

Senator PROXMIRE. Let me ask you this. If the U.S. decided to launch a near-term SDI deployment in the early to mid-1990's, a little earlier than you have indicated we might expect, but the President makes that decision, would the air defense initiative have anything available to deploy in that time frame?

Mr. ALDRIDGE. Yes, sir. As you know, we have some air defense modernization going on now with the Over-the-Horizon Backscatter Radar. We have AWACS, and we are planning to modernize the air defense fighter force with F–15's and F–16's. In fact, some of the F–15's are already on alert.

Of course, we are modernizing by taking out the old F–4's and the F–106's and planning to put in modified F–16's in their place. So there is some air defense capability that will exist in the early 1990's.

What we have to do is expand upon that capability to be as effective as SDI hopefully would be against the ballistic missiles—to be as effective against aircraft and cruise missile attacks. Our ADI would essentially augment ongoing air defense modernization with a capability in the mid-1990's.

NATIONAL AEROSPACE PLANE

Senator PROXMIRE. I would like to ask you a question about the national aerospace plane, which the President has dubbed the Orient Express. The Air Force is one of the agencies funding the aerospace plane research. There are other agencies, including one under another Subcommittee of the Appropriations Committee. I happen to be Chairman of that other subcommittee.

However, I received reports that the Air Force's own studies have indicated that the national aerospace plane will prove too costly for the Air Force's space plans for the next 20 years. I want to know if that is correct, and is there really any specific Air Force mission that compels us to build the national aerospace plane?

Mr. ALDRIDGE. Two things, Senator. I am not aware of any Air Force study that says it's too expensive, and I am surprised there is one, because all we are doing now is we have a three-phased technology program under way. The first phase is to explore the technical feasibility of building an aerospace plane, looking at technologies such as propulsion, avionics, structures, and materials.

There is no program beyond that which is called technology.

AIR FORCE MISSION

Senator PROXMIRE. What is the Air Force mission?

Mr. ALDRIDGE. We are looking at the mission of space booster, launching satellites into orbit from a single-stage-to-orbit, less expensive than shuttle. It could be reused, much like an airliner.

There is a possibility of [deleted]. There is a possibility of some weapons systems. But no mission has yet been identified for that.

The second phase, if the first phase is proven technically feasible, which is a 3-year effort jointly funded between the Department of Defense and NASA, then the next phase would be to build a research vehicle, like an X–15. We call it an X–30, but it would be a subscale research vehicle, to see if we can actually take those technologies, the individual technologies, and build a flyable, hypersonic aircraft from that.

That would also continue for several years, and would get us to the point where we could prove whether it is feasible to proceed into full-scale engineering development of variants of that aircraft for multiple missions. It could be commercial, it could be a space launch, or it could be military.

Our primary interest was the space launch capability that would exist for the aircraft, as opposed to military. But there could be some military missions for it some time in the future.

But the question of how much it is going to cost I cannot answer that, because I do not know whether the technologies will prove to be feasible or not. And that is the purpose of the first phase of the effort.

KC–135 AIRCRAFT ACCIDENT

Senator PROXMIRE. General Welch, on March 13, a KC–135, which is the Air Force's tanker plane that refuels B–52's, crashed at Fairchild Air Force Base in Washington, killing its seven crew members. The crash was unusual because the KC–135 was involved in a low-level aerobatics maneuver with a B–52.

Now, as I understand it, the Strategic Air Command wants to have its own aerobatics team called the Thunder Hawks, and the KC–135 that crashed was practicing stunts for the team. We have already got the Air Force Thunderbirds and the Navy's Blue Angels. Why does SAC need the aerobatics team to perform stunts at air shows?

General WELCH. The investigation of that accident, of course, is ongoing. But to answer your question as fully as possible, SAC has no intention of forming an aerobatics team of any kind. The name "Thunder Hawks" was a local name and it was really a very straightforward strategic capabilities demonstration.

Senator PROXMIRE. Were they or were they not practicing aerobatic stunts at the time?

General WELCH. No, sir, they were not practicing aerobatics. They were practicing a flyby, but they were doing nothing that could be defined as aerobatics. What the purpose of that particular operation, as I understand it, is in recent years it has been necessary to train at lower altitudes for air refueling, primarily because of the conventional mission, in order to refuel below the radar coverage of the enemy radars.

And so there has been more low-level work in tankers and bombers than in the past. As I understand this particular demonstration, the idea was for morale purposes, in order to demonstrate this particular capability with a tanker and a bomber.

The investigation is not complete and so we do not know whether or not the pilot was attempting a maneuver that was beyond the capability of the aircraft. It certainly was not the intent for him to attempt to go beyond such capability.

Chairman STENNIS. The Senator's time has expired, and I thank the Senator.

TACTICAL FIGHTER WING FORCE STRUCTURE

Gentlemen, the Air Force has previously testified and requested a force structure of 40 tactical fighter wings. Your statement put that requirement on hold for the near future as I understand it.

What is the Air Force obtaining in return for backing away or receding from this 40-wing proposal? What is the situation on that? I would like that to go in the record.

Mr. ALDRIDGE. Yes, sir. With the projections of the budgets anticipated over the next several years, it was clear that we could not do the force modernization, maintain the readiness and our personnel programs, and continue to grow the tactical air forces.

In our list of prorities, we made a conscious decision to delay achieving our goal. It is still our goal to have 40 TAC fighter wings and hopefully even more than 40 TAC fighter wings. But we have had to defer that goal to 37 TAC fighter wing equivalents.

We made a conscious decision that it would be better to keep a smaller force structure, but have it more modernized and more ready, than it would be to spend the money to grow the force structure and reduce the level of modernization of the force structure we had.

So we achieved a more modern, more capable, more ready force structure of 37 tactical fighter wings than we would have had if we grew to 40 TAC fighter wings.

Chairman STENNIS. This is not a personal question, but did you take part in that decision?

Mr. ALDRIDGE. Yes, sir. It was a decision that General Welch and I both took part in, and in looking at the needs of the commanders in chief around the world, who also input into our 5-year plan.

Chairman STENNIS. Well, you didn't put something else in its place as a substitute or give it a higher priority than it had—when you took that out?

Mr. ALDRIDGE. No, sir. It is very difficult to say. If you add something, you take something else. What we do in our budget is try to balance force structure, modernization, flying hours, operations and maintenance, personnel accounts, strategic modernization. And we try to put all of those pieces together into what we think is a balanced program.

And in the tactical fighter area, we made a conscious decision to retire some older fighters earlier in order to provide the funds necessary to keep the ones we had, the 37 TAC fighter wings, more capable and in a higher state of readiness.

Chairman STENNIS. Well, as I understand it now, it looks pretty good to me.

AMMUNITION BUDGET

Now, the Air Force budget request reduces the funds for procurement of bombs and ammunition by almost 50 percent from last year's level. Of the remaining money, the combined effects munitions accounts were halved.

What impact does this reduction have on Air Force war reserve stocks and sustainability?

Mr. ALDRIDGE. Sir, I think the way I understand the question—maybe General Welch can augment this—is that in providing the funding we have by necessity increased over the past several years the funding required for spare parts and munitions for readiness and sustainability. It is unfortunate that we cannot grow it as fast as we would like to because of funding constraints.

But we have made significant progress in sustainability, munitions, and in fact we are growing. By the end of the 5 years, we can maintain the number of sorties with preferred munitions at a very high percentage, and we have more than enough stocks in our non-preferred munitions to meet our combat requirements for sustainability.

We have also done the same thing and balanced that against the spare parts accounts. We have adequate spares to provide the necessary level of peacetime operating spares and for combat sorties.

We are a little shy in our war reserve stocks, but that is just a problem with funding, and it is something we cannot achieve as rapidly as we would like to achieve it.

Do you have any other comments?

Chairman STENNIS. General, please make such comments as you would see fit.

General WELCH. Just to put this a little more in context, our goal over these last few years has been to increase the level of preferred munitions, that is to load each combat sortie with the best possible munition to do the job intended on it.

We can never reach 100 percent of that, because last year's preferred munition is no longer preferred when something new is available. So probably the maximum level you could ever reach is about 80 or 85 percent. At the end of this particular 5-year plan we plan to be at about 75 percent.

So we will fall about 10 percent below, probably, where we could have been had we been able to maintain full support for that particular account. It is still a very important account and the CINC's feel very strongly that we should reach the highest level possible in preferred munitions. Nonetheless, we do have munitions required to effectively use all of the combat sorties.

MILITARY AND CIVILIAN END STRENGTH CHANGES

Chairman STENNIS. Now, I understand that the Air Force now proposes to decrease the military end strength for fiscal year 1988, while increasing the number of civilian employees. Now, what is the object of this kind of a tradeoff or change, and what exactly will these additional 1,200 civilians be doing?

General WELCH. Most of the military end strength reduction has to do with the change in force structure brought about by the budget problems we discussed earlier.

We will have somewhat fewer tactical fighter aircraft than we had predicted when we laid out the original 1988 plan during the 1987 budget.

The increases in civilians are for several reasons. For one, we have followed a program of converting military spaces to civilian spaces where that makes sense.

Chairman STENNIS. Thank you, General. Gentlemen, certainly you are entitled to go back and cover or recover anything that you may choose, in view of the questions you have already been asked, prompted by the hearing.

I call on you now to take advantage of this occasion, and make any statement you see fit.

Mr. ALDRIDGE. Mr. Chairman, I have no particular amplifying arguments except one, and it goes back to a significant concern that we have in the Air Force.

COMBAT FORCE AND PERSONNEL CAPABILITY IMPROVEMENTS

Over the past 5 or 6 years we have made substantial improvements in the capabilities of our combat forces and the quality of our personnel; remarkable improvements. And you see it everywhere you go in terms of the quality of the people, the quality of their life and how they are living, their morale, their dedication, their enthusiasm for the mission they are given.

I am concerned that as we go through the trends of the past 3 years (and it looks like into the fourth year—fiscal year 1988) we will find ourselves on a roller coaster. We have reached the top, and now we are on the downslide.

And I hope we do not continue that downslide back to the conditions that existed in the 1970s where airplanes could not fly and people were not motivated.

This rollercoaster budgeting is not the way to efficiently run the Department of Defense, and to achieve the combat capabilities and perform the missions that you want, and the country needs, us to do.

We need to stabilize so we can plan better, budget better, acquire better. We must have some type of a stable planning period in which to achieve the missions that you want us to achieve. I would hope that this committee and the rest of the Congress would see the wisdom of that logic and reverse this downward trend we have been on for the last 3 years to allow us to maintain all the accomplishments that we have made over the past 6 years.

Thank you, Mr. Chairman.

General WELCH. I would just make a few more comments about the quality of the people.

Chairman STENNIS. Yes, all right.

PERSONNEL QUALITY

General WELCH. We have emphasized, this morning, the very high quality of the people in the Air Force, and certainly I agree fully that we have been able to build a quality force. But there are important personnel issues that we faced in 1987 and we will face again in 1988 that require some attention.

Specifically, there is a proposal for further arbitrary cuts in the officer corps in the Air Force. As you know, in 1987 we cut 1 percent of all the officers in the Air Force. The logic for doing that had to do with the officer-to-enlisted ratio. There is a proposal now that we would cut 2 percent in 1988 and 3 percent in 1989. That would do great damage to the Air Force. That would require us to arbitrarily terminate productive careers of productive officers who are very much needed to continue the high quality Air Force that we now enjoy.

We have seen some cuts in specific accounts; for example, the PCS account was cut fairly severely last year, and we had to take some drastic steps in order to live within that particular limitation for even a year.

If the arbitrary cut in the PCS account continues this year, we will have extreme difficulty manning the force at the places where the force ought to be manned.

We have cut the permanent change of station account in the Air Force by 50 percent over the past 4 or 5 years, and we have about reached the limit of what we can do.

PILOT RETENTION

So these specific personnel issues are very important to us. Pilot retention is becoming a matter of some considerable concern. The Secretary mentioned it briefly, but I would like to expand just a little bit on why that is such a serious problem for us.

If pilot retention in the Air Force falls below about 55 percent, then we cannot sustain ourselves; that is, we cannot make up for the low retention by acquiring new pilots because we do not have the force structure to grow experience among the pilots. So any time it drops below about 55 percent we have a very serious problem in sustaining a quality force.

We are at about 52 percent right now. So again, we need lots of attention to those things that help us retain pilots.

We have had solid support from this committee in the past for quality people programs, and in spite of the fact that we do have a very high quality force, we really have to have continued support to maintain that quality force.

Nothing is more important to us than the quality of that force.

I thank you, Mr. Chairman.

Chairman STENNIS. Thank you.

DOD EFFORTS AT SAVINGS

Gentlemen, I know, by observation, something about what the Air Force and the other services were up against several years ago during the Vietnamese war times.

I was a Member who went out among the military and the military installations and proposed that I be permitted to come in contact with some of the privates and corporals, while isolated from all the rest; isolated from other soldiers, professional, commissioned or not.

And I learned more that way than I ever learned, far more rapidly. Sometimes they'd know I was on a military committee up here, and sometimes they wouldn't know it. But I really got it in the raw like it was.

And it was bad. Bad. I don't want to recite these things. But we ought to remember them.

So I have a feel for some of these things that you are talking about. And along that line, I think you would be a whole lot better understood if you show evidence of where you are trying to save money, just trying to cut corners and save some money.

That is what most people have to do to sustain their livelihood and maintain their support for themselves and their family; they have to cut corners and plan some savings. We don't all do it now. I said many of us.

But that is well understood language in America anyway, and the military could do a better job. I am not trying to give you a lecture; I am just making some observations. They could do a better job showing their desire to save money.

You don't make too much of a showing on that, even though I do know many times you work hard at it trying to make a creditable showing, and trying to represent the government; that's what you're doing.

It's the highest trust that anyone has, those of you who are in the military, particularly in the management field.

So I think in that way, if you could, without making a show or a pretense of it, if you could better establish the role and reputation of the military in this field of trying to make the dollar go as far as it can, it would be to your advantage.

SAVINGS THROUGH SUGGESTION PROGRAM

Mr. ALDRIDGE. Mr. Chairman, it is sometimes very difficult for us to do that, because, unfortunately, much of the good news that we do in this area is not news at all.

A good example: We have an Air Force suggestion program where our people can come and suggest changes to be made in operations. Last year we had 83,000 suggestions, which resulted in a savings to the American taxpayer of $246 million.

That will buy lots of hammers and lots of toilet seats. And, unfortunately, you do not read about those kinds of good news items that our people do in fact suggest, and they are very, very successful.

CONCLUDING REMARKS

Chairman STENNIS. All right. Well, understand, I am not trying to reform you or give you a lecture either. It is just the conditions. Many people think we Members of Congress spend too much of their money, too.

All right. Now, I want to ask unanimous consent that certain questions left for insertion in the record by Senator Byrd, who is a member of this committee, be included in the record.

I also have some questions, and I make the same request for myself.

The Chair finds that we have here certain questions, two in number, left by Senator Reid, with a request that they be included in the record.

Now the committee doesn't especially object to that. I am not going to object.

But we do have to have some limitation or some understanding about matters of that kind, otherwise we could be pushed out of the house someday ourself.

We are glad as a courtesy to Senator Reid, who is a promising new member of our group, though not a member of this subcommittee, as a courtesy to him we put those questions in the record and ask you give attention to them.

Also Senator Proxmire, who has been with us today and who always has good questions has two additional questions that I ask unanimous consent be included also in the record.

Are there any other questions?

Mr. SULLIVAN. No, sir, that is all we have.

Chairman STENNIS. Gentlemen, as I have said, I am very impressed by the testimony. You certainly know your business, and are a credit to the place you are holding.

I don't ordinarily say that as a matter of form or anything else. When I say it I mean it, and I mean it today.

This hearing, even though it comes at a time when it does not have full attendance, it will do good; I don't have any doubt about that.

There are things in here that the press will doubtless find to be helpful to them, and the duties that they carry out. So we want to especially thank you for being here.

We may get into a hole and have to send for you to come back, but we have tried to cover the subject today so that you will not have to be coming back.

If there is anything you wish to add, whether called upon by way of a question or not, you may do so now, both of you.

Mr. ALDRIDGE. No, Mr. Chairman, I have nothing to add.

General WELCH. Nor I, sir.

Chairman STENNIS. That shows you are very experienced witnesses. You don't want to overrun the battle.

All right, gentlemen, thank you very, very much. We are happy to have had you back with us.

SUBMITTED QUESTIONS

The submitted questions referred to earlier will be inserted in the record at this point.

[The following questions were not asked at the hearing, but were submitted to the Department for response subsequent to the hearing:]

QUESTIONS SUBMITTED BY CHAIRMAN STENNIS

B-1B BUDGET AND SCHEDULE

QUESTION: What major B-1B R&D activities are budgeted for FY 88 and FY 89? Provide a detailed breakout along with the FY 88-92 funding for each activity in both R&D and procurement. For each major activity connected with solving the B-1B's problems to restore the aircraft's capabilities to the baseline originally projected for IOC, provide a detailed schedule showing when those particular baseline capabilities will be restored. Include in this response an annual breakout of the R&D funding for flight testing in FY 88-92, and identify by test aircraft the major flight test objectives and by when each major objective is expected to be achieved.

ANSWER: In FY 88 and FY 89 the RDT&E budget request primarily supports an extension of the flight test program and completes the baseline development effort. A budget breakout is provided:

B-1B RDT&E SUMMARY (TY $ MILLIONS)

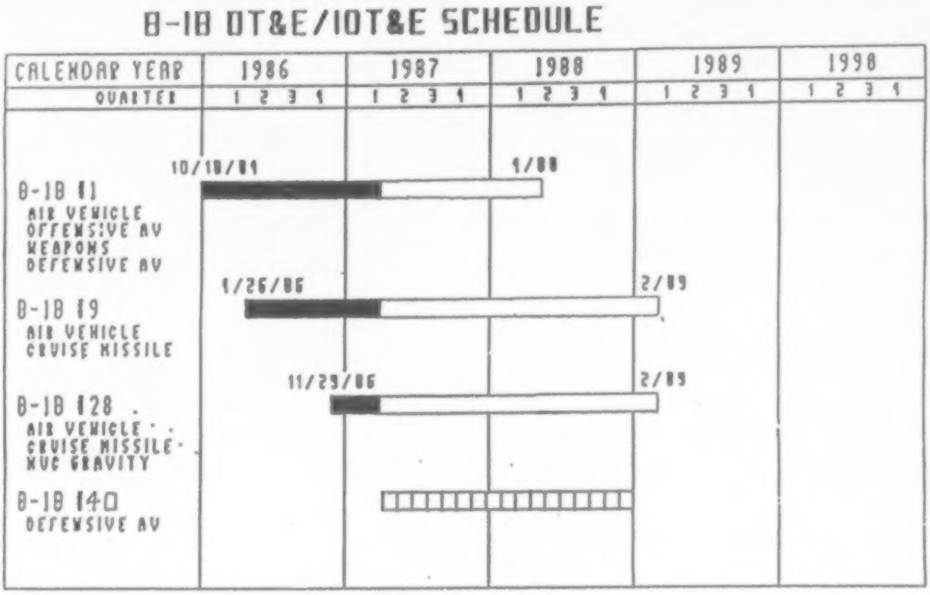
	FY 88	FY 89
Flight Test Program	260.0	90.0
Basic Contractor Support	12.8	87.0
Engineering Change Proposals	56.3	9.8
Other Government Costs	46.6	33.0
TOTAL	375.7	219.8

FY 86 was the last year for weapon system procurement funding. Procurement funding in the FY 88-92 period is for retrofit modifications of the aircraft. The funding profile on approved FY 88/89 programs within the President's Budget is as follows:

B-1B RETROFIT FUNDING PROFILE (TY $ MILLIONS)

MODIFICATION TITLE	FY 88	FY 89	
CLASS III (In Line Prod)	4.6	13.1	[Deleted.]
CLASS V (New Capability)	0	93.0	[Deleted.]
TOTAL	4.6	106.1	[Deleted.]

With the exception of the defensive system the specified baseline capabilities were delivered at IOC. The current flight test program is for the testing required to complete the development of the defensive system and other capabilities required after IOC such as conventional weapons and cruise missiles and associated flight control enhancements. In the case of the automatic terrain-following system, further testing is needed before routine training is done at the 200 feet setting released for wartime use at IOC. Testing will be accomplished on aircraft numbers 1, 9, 28 and 40. This flight test activity is scheduled to be completed in February 1989. Attachment 1 shows the flight test schedule. The defensive system retrofit, Mod 2, is scheduled for completion in early FY 91.



ATTACHMENT 1

B-1B PROGRESS REPORT

QUESTION: Provide a progress report on efforts to solve the following reported B-1B problems, including a projection of FY 88-92 annual spending and total R&D and procurement costs to solve these problems, a schedule showing when each is expected to be solved and the projected solution in each case: a. Terrain-following radar, including false returns and achievement of soft ride and hard ride capabilities; b. Fuel leaks; c. Flight stability enhancement and aircraft stall inhibiting; d. Defensive electronic countermeasures; e. Diagnostic test sets; f. Incompatibility of offensive and defensive avionics systems simultaneously.

ANSWER: Funding requirements of the B-1B baseline program are identified in the President's Fiscal Year 1988/1989 budget as follows:

	FY 88	FY 89	
RDT&E	375.5	219.8	[Deleted]
Procurement	0	0	[Deleted]

At this time, no additional funding is anticipated, and we are confident the program will be completed within the $20.5 billion (FY 81 $) ceiling. Specific "problem" areas are addressed below:

a. Terrain Following (TF) - Terrain following has been available for wartime use since September 1986. Terrain following at 500 feet was released for training in February 1987. Software changes are required to achieve full TF performance. Testing of soft ride will be completed this summer. Hard ride testing will also be completed this year.

b. Fuel Leaks - Initial aircraft experienced fuel leaks due to imperfect sealing procedures. The fix was to improve sealing procedures and to aggressively repair imperfect seals at SAC bases. Fuel leaks are now largely a routine maintenance item and are not seriously impacting sortie generation.

c. Flight Controls - The basic B-1B flight control system is a hydraulic-mechanical system which enables the B-1 to fly at its design weights and meet its range requirements. The B-1B program has instituted a two-step enhancement plan for the B-1B flight control system. The first step is the Stall Inhibitor System (SIS), which will provide precise high angle-of-attack (AOA) control by electronically inhibiting the aircraft from exceeding its AOA limit. The system is in flight test and will be released to SAC this year. Aircraft numbers 2-18 will receive SIS this year. The second step is the Stability Enhancement Function (SEF), which electronically allows the aircraft to fly beyond the basic design AOA capability. This, in turn, will allow greater low-altitude range at the highest weights associated with cruise missile carriage. Aircraft number 19 and subsequent aircraft will have the primary provisions for the SEF improvement installed during production. Delivery of the SEF improvement kits will begin in April 1988 with installation scheduled for 1988-1989. These retrofit efforts are all funded with prior year procurement monies. SEF development is underway and flight test will begin this summer.

d. Defense Electronic Countermeasures - We anticipate the baseline ECM system development will be complete by the fall of 1988. The baseline fixes will be introduced into fielded aircraft beginning in the summer of 1989. Our plan is to complete this development in three phases: Mod 0, which is an engineering evaluation of the currently fielded system; Mod 1, which is essentially a software improvement and includes some technique enhancements; and Mod 2, which will be hardware and software changes to meet the system specification.

e. Diagnostic Test Sets - Aggressive maturation activity over the last seven months has significantly reduced the average number of false alarms per flight. We are proceeding toward a goal of five false alarms per flight over the next six months. As the user gains experience and participates in the maturation process, reliance of CITS will continue to increase and it will become an important tool for maintenance and trouble shooting.

f. Incompatibility of Offensive and Defense Avionics Systems - There is not an interference problem today, and we do not expect to encounter any incompatibility in the future. The B-1B basic design uses antenna and transmitter isolation, built-in electronic countercountermeasures (ECCM) and a radio frequency signal management system (RFSMS) to allow simultaneous operation in the same frequency bands. Worst-case tests were accomplished in an attempt to force interference. In spite of rigorous jamming efforts, all modes (including the automatic terrain following system) operated without degradation.

B-1B R&D FUNDING PROJECTIONS

QUESTION: In January 1986, the Air Force projected that the FY 88 R&D funding request would total $29 million and the FY 89 R&D request would be $14 million, despite the fact it knew that the B-1B was experiencing some problems, and that as early as 1982 or 1983 a stability enhancement function and stall inhibiting system would be required. The FY 88/89 budget request submitted in January 1987 seeks $415 million in R&D for the B-1B in FY 88 and projects an R&D request of $386.7 million for FY 89 and additional funding to completion of R&D of $178.8 million. Since, the Defense Department budget formulation process takes two years, and since some of the B-1B's problems were known to the Air Force before January 1986, why did the Air Force not inform Congress earlier than this January of the additional R&D costs required to fix and enhance the aircraft?

ANSWER: When the FY 87 President's Budget was submitted in January 1986, the Air Force knew that the test program on B-1A number 4 and B-1B number 1 would need to be extended from June to September 1986. This initial extension was accurately reflected in the FY 87 RDT&E Descriptive Summary. It was not until the spring of 1986 that the Air Force first appreciated the dimensions of the current restructured development program with flight testing extended well into FY 89. Key members of the Senate staff were briefed on B-1B development problems in this timeframe. On August 22, 1986, the Secretary of the Air Force sent a B-1B accounting status report to the chairmen of the SASC, SAC, HASC and HAC. This report stated that additional development and testing would be needed due to avionics software problems. The Air Force has not been delinquent in its efforts to keep the Congress informed.

B-1B BUDGET PROJECTION

Question: There has been a projection that the full costs to fix and enhance the B-1B could be more than $3 billion. Provide a detailed Air Force position on this projection.

Answer: The total cost to complete development of the baseline B-1B aircraft is $596 million, as requested in the FY 88/89 RDT&E request. If this request is honored, the program will be funded at $20.2 billion (FY 81 dollars), well within the cost cap.

The $20.5 billion cap was never intended to be a life-cycle cost certification. As with all aircraft, enhancements and upgrades will undoubtedly be necessary over the B-1B's long service life. However, we do not specifically understand the basis for the $3 billion cost assertion.

B-1B RADAR

QUESTION: In 1981, the Under Secretary of Defense for R&D testified that a FLIR is "not worth much" in a modern penetrating bomber, and would not be put on the B-1B because of the high quality of the B-1B radar. What has changed to make it necessary now? Is it required to compensate for lower than anticipated performance in the B-1B offensive radar?

ANSWER: Evolving Strategic Air Command missions and targeting needs require incorporation of a FLIR. The FLIR technology being considered is several generations beyond and for a different purpose than the FLIR originally considered for the B-1A. Specifically, FLIR will add a new dimension of capability for both conventional missions and nuclear strike missions. Of particular benefit will be FLIRS capability to aid in [deleted].

Coupled with the excellent performance of the B-1B offensive radar, the overall capability of this bomber will be significantly enhanced across the broad spectrum of conflict.

B-1B PENETRATOR ENHANCEMENTS

QUESTION: Specifically, what performance capabilities will be added to the ALQ-161 by the modification you are currently proposing? Even if all current problems with the ALQ-161 are worked out as scheduled, enhancements could not be deployed until the mid-1990s at the earliest. How many years will the B-1B continue to be used as a penetrator, and what is the cost effectiveness of $1 billion worth of penetrator enhancements if only limited use will be made of them?

ANSWER: The planned upgrades to the baseline B-1B ECM system (the ALQ-161A) will increase its processing capabilities and provide threat updates. The B-1B, even with the partial capability of its current defensive avionics system, is an effective penetrator against today's threat. As development of this system is completed over the next several years, B-1B penetration effectiveness will increase even as the Soviets deploy advanced threat systems. During the 1990s, without major enhancements, B-1B penetration effectiveness will necessarily erode as the Soviets continue to field significant numbers of high-quality defensive systems.

As the Advanced Technology Bomber is deployed in the 1990s, the B-1B will be phased into the less demanding shoot-then-penetrate role. The synergism of a mixed force will stress the Soviet defenses well into the 21st century. However, routine updates to the B-1B's ECM system will be required throughout its service life to ensure its continued viability as a nuclear or conventional bomber and as a cruise missile carrier. This move-countermove imperative is a fact of life in the ECM business. We do not know the source of the $1 billion dollar estimate.

CRITERIA FOR EVALUATING AIL

QUESTION: The Air Force had been evaluating the ability of AIL to correct its current problems, and those options are being considered as solutions. What criteria will be used to judge AIL's ability to correct its problems? What criteria will be used to determine which of the options will be selected. Is there really any alternative to contracting for a capable avionics integrator? When will the budgetary implications of this decision be known?

ANSWER: EATON/AIL is executing a recovery plan which contains defined milestones to gauge progress toward recovery. Failure to achieve satisfactory progress against these milestones would necessitate consideration of other options. For example, the first major activity, the Mod 0 Engineering Evaluation, has two key milestones: completion of testing and subsequent submission of an evaluation report.

To date, integration with all other aircraft systems has not been the EATON problem. EATON/AIL has simply not completed development necessary to make the system work. A company with more avionics development resources might be able to assist EATON, but the basic work to be done remains their responsibility.

Additional development and flight tests are required as reflected in our budget request. Any retrofit costs will not be precisely known until the results of the Mod 0 evaluations are known later this summer. At this time, these costs are not expected to exceed our current budget.

B-1B SIOP CAPABILITIES

Question: What are the current restrictions on the B-1B flight envelope if Emergency War Orders are issued to operational aircraft? To what extent do these restrictions limit SIOP utility of the B-1B and to what extent have SIOP assignments been altered for the B-1B based on its reduced capabilities? When is it anticipated that these restrictions will be lifted?

Answer: There are no restrictions on the B-1B flight envelope for the Emergency War Order mission. The aircraft today meets its specified mission. As Gen Chain, CINCSAC, has said, "The B-1B can carry its assigned payload the required range and is effectively employed in the SIOP."

[Deleted].

MANAGEMENT RESERVES AND CONTINGENCY FUNDS

QUESTION: Identify the management reserves and other contingency funds in the procurement and R&D requests of the following programs in FY 88 and FY 89: MX, SICBM, C-17, Space Defense, NASP, SRAM II, Air Defense Initiative, Advanced Tactical Fighter, ATB, ACM, F-15E.

ANSWER: There are no funds budgeted in the FY 88 and 89 procurement and R&D requests for management reserve or contingencies. Management reserve is a term that generally applies to our Air Force contractors. It represents a value within the negotiated contract target cost that the contractor's senior management has decided not to initially distribute to his functional departments. As the contract progresses, management reserve funds are distributed to functional departments requiring funds to solve unforeseen problems.

UNOBLIGATED AND UNEXPENDED BALANCE PROJECTIONS

QUESTION: Identify by fiscal year the unobligated and unexpended balances in each of these programs projected through end FY 88: MX, SICBM, C-17, Space Defense, NASP, SRAM II, Air Defense Initiative, Advanced Tactical Fighter, ATB, ACM, F-15E.

ANSWER: Listed below are unobligated and unexpended balances projected through the end of FY 88 for the requested programs:

	Projected End of FY 87		Projected End of FY 88	
	Unoblig	Unexp	Unoblig	Unexp
FY 86 RDT&E ($M)				
ADI	0	1.9	N/A	0
Space Defense Sys	0	16.2	N/A	4.7
C-17	0	0	N/A	0
MX	0	66.6	N/A	2.0
SICBM	0	28.7	N/A	0
SRAM II	0	3.0	N/A	1.0
ATF	0	4.9	N/A	4.2
NASP	0	0	N/A	0
F-15E	Not an RDT&E Program			
ATB/ACM	Info available only through Special Access Required (SAR) channels.			
FY 87 RDT&E ($M)				
ADI	0.5	11.8	0	0.9
Space Defense Sys	16.8	78.4	0	18.8
C-17	0.5	375.4	0	0
MX	87.4	206.5	0	32.4
SICBM	19.4	335.3	0	66.7
SRAM II	0	30.8	0	7.4
ATF	0.4	40.0	0	5.5
NASP	N/A. Cong denied FY 87 request.			
F-15E	Not an RDT&E program.			
ATB/ACM	Info available only through Special Access Required (SAR) channels.			

COST PER MONTH FOR FLIGHT TESTS

QUESTION: Identify cost per month of 45 months of flight testing identified to Subcommittee earlier this year as above the projected requirements and identify when those months occur in the flight test program.

ANSWER: In early 1986, test schedule slips required minor flight test extensions. In late 1986, significant development delays in the B-1B test program required a major restructure of remaining flight test effort. The result was a 44 aircraft-month extension of the flight test period of performance as detailed by test aircraft in the matrix below:

Aircraft	Test Extension	Extra Months
A/C #1	4/01/87 - 4/30/88	13
A/C #9	3/15/88 - 2/28/89	12.5
A/C #28	5/15/88 - 2/28/89	9.5
A/C #40	4/01/88 - 12/31/88	9
		44

The cost of the additional flight testing is approximately $8 million per aircraft-month or about $350 million for the full extension. This does not include the cost of additional engineering development support or Other Government Costs, which includes Air Force Flight Test Center support costs.

DEVELOPMENT OF THE MANEUVERING RE-ENTRY VEHICLE (MARV)

QUESTION: What prospects exist for accelerating the evader MARV (maneuvering re-entry vehicle) and MARV with terminal fix guidance into full-scale development (FSD), at what levels of risk, and at what cost in which fiscal years?

ANSWER: The evader MARV could be accelerated into FSD by two years (FY 90 vice FY 92) but the risk would change from low to high. An immediate go ahead and $80 million over the next two years would be needed for the accelerated program.

Presently the Air Force is not planning to continue vigorous development of the terminal fix sensor (TFS) for MARVs past FY 88. However, we are continuing TFS technology development and preserving the option in the evader MARV program to incorporate the TFS at a later date. To include the TFS would require more time to reach FSD--FY 93 at a normal development pace, FY 92 at an accelerated pace. An additional $350 million would be required between FY 88 and FY 93 to incorporate TFS. For the accelerated program, total costs would not change substantially but the risk would become high.

IMPACT OF R&D BUDGET REDUCTIONS

QUESTION: What schedule and cost impacts would be caused by the following reductions in the FY 88 budget results for: MX rail-garrison R&D - of $100 million, $200 million, $300 million, $340 million; SICBM R&D - of $400-$600 million, of $800 million, of $1 billion. How much funding could be saved in FY 88 if Congress decided to delay MX and and SICBM IOCs by one year each?

ANSWER: Reducing the FY 88 Rail-Garrison request by $340 million to a $250 million (House mark) program would delay the initial Systems Design Review (SDR) by at least six months. This would in turn preclude developing and testing the prototype launch control car and missile launch car. It would also defer subsystem hardness and shock testing, facilities development and environmental impact analyses until FY 89. The net effect of these actions will be to delay the overall program by over 12 months. The Air Force could probably withstand a reduction of $190 million to a $400 million (Senate mark) program and still keep the program on a schedule that would support the planned December 1991 IOC. However, even at this level some system testing would have to be delayed.

Turning to Small ICBM funding, recent competitive contract awards have produced savings that will allow the program to remain on schedule at a funding level of $1.7 billion in FY 88. Reductions below that amount will begin to jeopardize program milestones. For example, cutting the program $1 billion to a level of $1.2 billion will cause a slip in IOC of up to a year. This is due to a reduced level of developmental work in FY 88 which, in turn, will delay the first test flight and the production start by upwards of a year. Additionally, because development fixed-price contracts would have to be descoped and restructured in a sole-source environment, a payback of up to 2 to 1 would be required to achieve the delayed IOC.

ATB MISSIONS AND TARGETS

QUESTION: What missions and targets could not be covered by the ATB armed with cruise missiles - ALCM B and ACM - that only could be covered by SRAM II, and why couldn't an ATB/ACM combination be used for defense suppression, as well as for other SRAM II missions?

ANSWER: Information regarding the operational employment of the ATB is specifically controlled under SPECIAL ACCESS procedures. Procedures have been established to provide this information through the committee staff.

STRATEGIC RELOCATABLE TARGETS

QUESTION: The Air Force initiated a modestly funded new start program in FY 87 to conduct R&D to enhance its capabilities to target strategic relocatable targets. At what total cost and by what year does the Air Force expect this program, along with any associated procurement and deployment, [deleted].

ANSWER: (Deleted). Based on the current state of sensor technology and our understanding of the problem of (deleted).

The SRT program is focusing on determining (deleted). The near-term application of these technologies will be applied toward (deleted).

BUDGET FOR MX RAIL-GARRISON AND SMALL ICBM

QUESTION: Provide a detailed breakout of the FY 88 and FY 89 R&D requests for the MX Rail-garrison basing mode, and the SICBM, including identification and explanation of major activities and a detailed schedule. Identify the major technical, operational and programmatic uncertainties associated with each basing mode and the dollars, activities and schedule planned in the next two years, and through IOC, to eliminate these uncertainties.

ANSWER: Detailed programmatic impact studies/analysis will be provided in the Peacekeeper Rail-garrison and the SICBM program Selected Acquisition Reports. A general description of Rail-garrison work in FY 88 and 89 is as follows:

- Determine system requirements for missile launch car, security car, launch control car and launch control system
- Design, develop, fabricate and test engineering models at system/subsystem and end item level
- Evaluate Peacekeeper guidance and control
- Test missile ejection
- Perform nuclear hardness and survivability testing
- Define and develop maintenance concept
- Conduct environmental impact studies/analysis

A general description of Small ICBM tasks in FY 88 and 89 is as follows:

- Full-scale design and development of the missile, hard mobile launcher (HML) and weapon control system (WCS)
- Fabricate and ground test the HML
- Hardness and mobility testing
- Continue full-scale motor firings and case burst testing
- Continue Cannister and Launch Test Program
- Begin flight test program from a pad - 1 Qtr, CY 89

PEACETIME BASING

QUESTION: What gives DOD confidence that Peacekeeper missiles in rail-garrison basing will be as accurate and as ready for rapid launch as are Peacekeeper missiles in Minuteman silos. In particular, what tests have been conducted, or are planned, to demonstrate that capability?

ANSWER: The rail-garrison Peacekeeper will have the same superior guidance systems (AIRS) used in the silo-based Peacekeeper today. The AIRS has been so successful it is also being tested in a mobile mode for the Small ICBM. Missile data gathered for the SICBM will verify our predictions of rail-garrison performance. We will also do bench testing and mobility testing on rail garrison AIRS assets. Our projections show we will meet the specified accuracy requirement but R&D funding as requested in the FY 88 President's budget is necessary to conduct our verifications.

MX RAIL-GARRISON TESTING

QUESTION: What gives DOD confidence that a 195,000 pound Peacekeeper missile can be launched from a rail car? What tests have been conducted or are planned to demonstrate that capability?

ANSWER: The first eight Peacekeepers were launched from a cannister attached to a concrete apron at Vandenberg AFB, CA. This gives us confidence we can raise and fire a cannisterized missile. A further series of tests in the next two years will demonstrate an ability to mate a cannister to a rail car and stabilize it for launch, first with inert missiles and finally with live test missiles from a rail car at Vandenberg.

DISPERSAL CAPABILITY OF SMALL ICBMs

QUESTION: Will weather conditions at the Minuteman sites reduce the dispersal capability of Small ICBMs on hard mobile launchers? If so, identify the dispersal area that can be generated in the best and worst weather conditions.

ANSWER: The Small ICBM can generate about 22,000 square miles in less than 30 minutes assuming dry conditions at the three Minuteman Wings. Under wet conditions (analysis did not include any gravel road, dirt road, or off-road travel) approximately 13,000 square miles could be generated.

Whether the conditions are wet or dry, the Small ICBM's ability to generate area far exceeds the Soviet capability to barrage attack. As such, weather conditions are not seen as a significant factor in any Soviet decision to initiate a nuclear attack on the United States.

OPERATION OF MX RAIL-GARRISON TRAINS

QUESTION: How does the Air Force plan to operate the Peacekeeper trains on the nation's railways without interfering with the railroad's day-to-day traffic? In particular, how does the Air Force plan to keep the location of the Peacekeeper trains unknown while coordinating their movements with the national railway network?

ANSWER: Since the trains will be in garrison on a day-to-day basis, there will be no interference with railway traffic. There are 22 major companies and hundreds of smaller rail companies, each with its own train control system. If the trains are ever dispersed, one company may know the location of one or even several trains on its rails; none will know the location of a significant portion of trains.

FUNDING PROFILE FOR SELECTED STRATEGIC PROGRAMS

QUESTION: Provide a funding profile for fiscal years 1987 to 1993 showing by year, and appropriation, the total funds needed for ICBM modernization by program such as, Small ICBM/HML, Peacekeeper in Minuteman silos, Peacekeeper/Rail Garrison, Advance Strategic Missile Systems, and Minuteman modernization.

ANSWER: Funding profiles for selected ICBM programs follow (TY $M):

PEACEKEEPER IN MINUTEMAN SILOS

	87	88	89	90	91	92	93
RDT&E	290.0	51.2	40.0	(D)	(D)	(D)	(D)
PROC	1136.6	1276.9	1361.1	(D)	(D)	(D)	(D)
MILCON	25.9	9.4	6.5	(D)	(D)	(D)	(D)

PEACEKEEPER/RAIL-GARRISON

	87	88	89	90	91	92	93
RDT&E	90.0	591.0	1192.9	(D)	(D)	(D)	(D)
PROC							
MILCON			44.5	(D)	(D)	(D)	(D)

SMALL ICBM

	87	88	89	90	91	92	93
RDT&E	1137.2	2233.2	2228.8	(D)	(D)	(D)	(D)
PROC			121.6	(D)	(D)	(D)	(D)
MILCON							

ADVANCED STRATEGIC MISSILE SYSTEMS

	87	88	89	90	91	92	93
RDT&E	145.0	134.2	152.0	(D)	(D)	(D)	(D)

MINUTEMAN MODERNIZATION

	87	88	89	90	91	92	93
RDT&E	48.3	107.7	199.6	(D)	(D)	(D)	(D)
PROC							

PROJECTED COSTS OF THE AIR DEFENSE INITIATIVE

QUESTION: Provide a detailed FY 88-92 chart showing annually, the requested and projected spending for all program elements throughout DOD and the military Services associated with the Air Defense Initiative, in two cases: a. directly associated with ADI; b. indirectly associated with ADI. For each program element, please identify the year in which each enters full-scale development, production and achieves IOC. Show the "cost to completion" for each program element.

ANSWER: Air Force ADI funding request for FY 88 (D) is:

PE	FY 88	FY 89	FY 90	FY 91	FY 92
63368F	17.1	35.8	(D)	(D)	(D)
63369F	13.2	35.0	(D)	(D)	(D)
63716F	8.7	1.6	(D)	(D)	(D)
63738F	85.7	138.9	(D)	(D)	(D)
TOTAL	124.6	211.3	(D)	(D)	(D)

The Navy is the only other Service having direct ADI funding. ADI has no indirect funding since no program has had its budget or schedule changed as a result of ADI. There are a number of conventional warfare programs (theater air defense and maritime anti-air warfare) which are developing technologies applicable to a future North American air defense system. ADI is tracking these programs and is funding only the needed technologies not covered by these programs. ADI has not in any way perturbated these programs. ADI is a collection of technology development programs that will allow for FSD decisions in the early 1990s. No decision on production and IOC dates for any of the resulting systems can be made until after the FSD decision.

COMPARISON OF US TRIAD FORCES

QUESTION: Provide a comparison of all US TRIAD forces at present, in 1992 and after FOC for the SICBM, under day-to-day alert and generated alert conditions, assuming the USSR attacks first and the US: a. rides out the full attack before retaliating; b. retaliates under expected SIOP scenarios. Provide the comparison in terms of the following: 1. Surviving warheads and launchers; 2. Overall damage expectancy of the surviving forces against the Soviet targets base in the most reasonable US retaliation scenario; 3. Overall damage expectancy of each TRIAD system against hard Soviet targets; 4. Overall damage expectancy of each TRIAD system against its most likely SIOP targets. Provide the comparison also geared to attack and retaliation timelines showing the first 72 hours after initiation of hostilities and showing attack times, generation times, warhead and launcher drawdowns, declining damage expectancy of each US TRIAD system.

ANSWER: The basic purpose of our strategic offensive forces is to deter an attack against the US and our allies. We deter the Soviets by maintaining the capability to deny their wartime objectives. Success in the deterrence task springs from our ability to ensure that Soviet leaders are highly "uncertain" of their ability to successfully attack the US and highly "certain" of an effective US retaliatory response to such an attack.

The diversity and synergism of the US TRIAD have long created great Soviet "uncertainty" that they could successfully attack the US and the planned strategic offensive forces modernization will further reduce Soviet chances of success. To ensure that Soviet leaders have the proper perception ("certainty" of an effective US retaliation), we need nuclear forces to hold at risk a substantial portion of the Soviet warfighting capabilities.

Planned force structures for 1987, 1992 (Small ICBM IOC), and 1999 (force planning goal attained) ar outlined below:

PLANNED FORCE STRUCTURE (ON-LINE SYSTEMS)

FORCES	1987	1992	1999
ICBMs:	(D)	(D)	(D)
SLBMs:	(D)	(D)	(D)
BMRs:	(D)	(D)	(D)

[1] Assumes second 50 Peacekeeper in rail garrison (IOC in 1991)

[2] Assumes SICBM IOC of 1992. Final force levels for SICBM have not been established; 500 is used for planning purposes only.

[3] Navy forces are based on Navy-approved planning factors provided to the JCS

[4] Assumes a notional (D) ATB IOC

[5] Assumes (D) B-52, (D) B-1B, and a still to be determined number of ATB

These forces can be in one of (D) force readiness postures: [deleted] posture. In the [deleted] posture all SIOP committed forces have attained alert status in response to some extreme crisis. On the other hand, our [deleted] posture maintains approximately one-third of the bomber force on strip alert, about [deleted] of the SLBM force at-sea, and nearly all of the ICBMs on constant alert status. If a nuclear conflict were to occur, the [deleted] since the Soviets cannot attain their war aims without significant preparations for war. We will see these preparations and respond accordingly. Even Soviet doctrine holds that a strategic nuclear exchange would be preceded by an extensive crisis period and conventional conflict in Europe. This is why the Soviets (day-to-day) [deleted] of their SSBNs in port.

Given the (D) force posture conditions and a Soviet attack, the US retaliation decision may be made [deleted] [deleted]. In the [deleted] force posture, when both sides have prepared their forces for nuclear war with attack warning sensors and C^3 systems at maximum readiness, a [deleted] [deleted]. The average improvement in TRIAD damage expectancy (DE), outlined below, considers the probability of both [deleted] force postures and the likelihood of a particular execution scenario.

The DE expressed represents the increase (when compared to 1987) in total TRIAD capability against fixed targets. Many of the hardest and important targets are [deleted] by different [deleted] [deleted] and increase the certainty, from a Soviet perspective, that their most valued warfighting resources will be held at risk. Reporting DE of a specific system against its most likely SIOP targets considers the statistical combination of two weapons on a target and ignores the high quality contribution of each weapon. Because it tends to mask the effectiveness and unique contribution of individual systems, specific system DE against a fraction of the target set can present a somewhat misleading picture. By the late-90s our modernized strategic offensive forces provide an increasingly effective retaliation against fixed Soviet targets.

AVERAGE EXPECTED IMPROVEMENT IN TRIAD DE
(1987 BASELINE)

	1992	1999
TOTAL[1]	(D)	(D)

[1] Fixed Targets

SURVIVABILITY OF PEACEKEEPER RAIL-GARRISON AND SMALL ICBM

QUESTION: Under the same conditions of tactical warning (15-35 minutes), which system is more survivable - MX rail garrison or SICBM? Under the same conditions of strategic warning (3 hours case; 6 hours case)? Provide the generated alert case, and assuming full deployment of 50 MX rail garrison and 500 SICBM.

ANSWER: We modernize and maintain diverse Strategic Triad force elements to provide a full-range of capabilities and to present a wide variety of frustrations and obstacles to the Soviet planner. We have designed ICBM modernization in a like manner. Peacekeeper and Small ICBM (SICBM) will complement each other and other ICBM forces with unique characteristics and capabilities. Therefore, survivability comparisons of Peacekeeper in Rail-Garrision (PKRG) to SICBM, under conditions of tactical and strategic warning, are not operationally realistic; simply put, it's an "apples and oranges" comparison. One of the more attractive features designed into PKRG is the ability to be dispersed easily in times of national need. This allows an ability to provide more and more survivable strategic forces as a crisis builds. Rail-garrison complements the SICBM operational flexibility available to disperse as late as tactical warning. Because the Soviets must execute extensive preparation for strategic nuclear conflict, [deleted] we confidently can expect sufficient warning to permit US strategic force generation and dispersal; i.e., bombers, SSBNs and ICBMs.

In evaluating US survivability it is essential to analyze in a realistic operational context, using our assessment of Soviet perspectives. The attached chart reflects an operationally realistic case and shows the amount of Soviet strategic nuclear capability in 1997 available to barrage various elements of the US Triad. The USSR total strategic inventory is plotted on the far left (in [deleted] --all Soviet strategic nuclear weapons normalized to units of [deleted] on each booster). A major portion of these forces would be used to attack fixed US targets (second from left). Another portion would be held in reserve, leaving [deleted] available to barrage the following Triad forces: the bomber flyout corridors, the SSBN possible patrol locations (assuming locations known within previous 24 hours), PKRG after hours of dispersal, and SICBM after 30 minutes of dispersal. This analysis considers war initiation after expected generation time and assumes a minimum dispersal time for Peacekeeper. It also includes planned operations procedures for SICBM; i.e., dashing on tactical warning. As noted on the chart, after [deleted] SICBM shows a barrage requirement far beyond [deleted]. This approach treats these systems in the most realistic operational framework. As can be seen, the Soviets do not have enough warheads available to barrage any element of the (mobile) Triad individually, much less all of them.

SOVIET UNCERTAINTY OF SUCCESSFUL ATTACK

[Deleted]

BOTTOM LINE:

- SOVIETS CANNOT BARRAGE U.S. MOBILE SYSTEMS
- MOBILE ICBMs MUST BE TREATED AS SOVIET RELOCATABLE TARGET PROBLEM

SURVIVABILITY OF SMALL ICBM AND MX RAIL-GARRISON AGAINST SS-18

QUESTION: Combine the attached charts from the Air Force's March 1987 "ICBM Modernization Data Book" to show survivability of both Small ICBM and MX rail garrison under the same time-oriented conditions and against the present and projected SS-18 warhead inventory.

ANSWER: The attached chart shows the amount of Soviet strategic nuclear capability in 1997 available to barrage various elements of the US TRIAD. The USSR total strategic inventory is plotted on the far left (in SS-18 Follow-on B booster equivalents -- all Soviet strategic nuclear weapons normalized to units of [deleted] warheads on each booster). A major portion of these forces would be used to attack fixed US targets (second from left). Another portion would be held in reserve, thus leaving (D) SS-18 booster equivalents available to barrage the following TRIAD forces:

[Deleted] [deleted]. This analysis considers war initiation after expected generation time and assumes a minimum dispersal time for Peacekeeper. It also includes planned operations procedures for Small ICBM; i.e., dashing on tactical warning. As noted on the chart, after 5 hours of dispersal, Small ICBM shows a barrage requirement far beyond (D) equivalent SS-18s. This analytic approach treats these systems in the most realistic operational framework. As can be seen, the Soviets do not have enough warheads available to barrage any single element of the (mobile) TRIAD individually, much less all of them.

SOVIET UNCERTAINTY OF SUCCESSFUL ATTACK

PRICE – TO – ATTACK U.S. FIXED INSTALLATIONS	PRICE – TO – ATTACK U.S. MOBILE SYSTEMS

[Deleted]

BOTTOM LINE:

- SOVIETS CANNOT BARRAGE U.S. MOBILE SYSTEMS
- MOBILE ICBMs MUST BE TREATED AS SOVIET RELOCATABLE TARGET PROBLEM

AIRCRAFT AND MUNITIONS PROCUREMENT

QUESTION: Mr Secretary, it would appear that Aircraft and Munitions procurement have taken a backseat this year to the production of missiles. How did the Air Force arrive at this set of priorities for FY 88, and what long-term impact will this program have on the conventional warfighting strength of the Air Force?

ANSWER: The Air Force priorities for FY 88 are consistent with the strategy and priorities outlined in the Defense Guidance and will provide our nation the proper balance of systems for a credible deterrent posture based on effective warfighting capability. In building these priorities we recognized that the Soviet Union's advantages in land-based ICBMs could be very destabilizing because they provide them with unmatched force structure and warfighting advantages. Because of that, ICBM modernization was a high priority (in fact strategic modernization is the President.s highest priority) and, until we have deployed a full contingent of Peacekeeper missiles, will continue to be high on our list of requirements. At the same time, our recommendations for improved conventional aircraft and munitions will provide greatly improved capability in the nearterm.

In short, we are not mortgaging conventional forces to improve strategic missile capability. Given our dedication to improving our future conventional forces we do not believe that the current higher priority assigned to strategic nuclear offensive modernization will degrade our ability to field effective, capable conventional munitions and aircraft in the long-term.

40 TACTICAL FIGHTER WINGS

QUESTION: The Air Force has previously testified and requested a force structure of 40 tactical fighter wings. Your statement puts that requirement on hold for the near future. What is the Air Force obtaining in return for backing away from the 40 wings program?

ANSWER: Our requirements remain in excess of 40 TFWs and our interim goal is still 40 TFWs. However, under present fiscal constraints, a procurement level necessary to achieve our 40 TFW goal and sustain our current force is not possible. With the available funding we have temporarily slowed force growth to 37 TFWs to ensure a balanced, capable and modern force. We are developing modification programs for current inventory aircraft to increase capability, serviceability and aircraft service life.

IMPACT OF FY 88 OUTLAY FREEZE

QUESTION: The Budget Resolutions pending in both the House and Senate effectively freeze outlays for fiscal year 1988. What impact will such a freeze have on the Air Force, given the very high level of prior year obligations you are facing?

ANSWER: The budget resolution outlay level may be achieved through the corresponding congressional reductions to budget authority. If, however, the budget resolution outlay level is a constraint on the department, and if congressional budget authority reductions do not yield the required outlay savings, the department will have to consider other actions, such as rescission, to rectify the imbalance. Inevitably the focus will be on the readiness-related O&M and personnel accounts where the proportion of current year outlays resulting from current year budget authority is the greatest. Appropriated personnel dollars expend over 95% in the first year while O&M expends approximately 75%. There can be some outlay reduction through action in the remaining appropriations, but the ratio in these accounts of current-year budget authority to current year outlays ranges from two to one in RDT&E to over ten to one in aircraft procurement. Given these ratios, no serious current-year outlay impact can be achieved without very severe resource impact.

IMPACT OF REDUCED MUNITIONS FUNDING

QUESTION: The Air Force budget request reduces the funds for procurement of bombs and ammunition by almost 50% from last year's level. Of the remaining money, the Combined Effects Munition accounts for half. What impact does this reduction have on Air Force war reserve stocks and sustainability?

ANSWER: The Other Procurement FY 88 munitions budget is almost 50% less than last year's approved request. When the FY 87 supplemental is excluded, the reduction is $400.1 million or 38%. When carefully examined, the impact is not as significant as the raw numbers would purport. First, both aircrew and ground personnel training requirements are fully supported at a lower amount due to favorable pricing resulting from competition and increased availability of inventory assets. Also, all of the line items involve adjustments between the two years if for no reason other than revised inflationary forecasts. A large portion, $366.0 million of the $400.1 million decrease, is attributable to four items: 1) CBU-89, GATOR $110.2 million; program slippage negates need for FY 88 funding; 2) GBU-15 $107.0 million; procurement terminated due to transition to the AGM-130 powered version procured in the Missile Appropriation; 3) Durandal $70.0 million; program discontinued in favor of the preferred Direct Airfield Attack Combined Munition (DAACM) available in FY 90; and 4) CBU-87 CEM $78.8 million; annual procurement quantity slowed but still sufficient to maintain competitive dual source. The FY 88 request will continue to increase our stockage objectives and provide 4500 additional optimally loaded wartime sorties. For the reasons outlined above, we do not believe the reduced request will have a significant impact on sustainability.

MILITARY END-STRENGTH

QUESTION: The Air Force proposes to decrease military end-strength for fiscal year 1988, while increasing the number of civilian employees. What is the object of this kind of trade-off, and what exactly will these 1200 civilians be doing?

ANSWER: Manpower is a resource, directly linked to the number and deployment of weapon systems. As such, manpower changes are programmatically driven by changing missions and priorities within a fiscally constrained environment. In FY 88, fiscal constraints drove changes in force structure and other programs which required manpower reductions in tactical air forces, mobility and training areas, while increases were programmed in strategic forces, ground launched cruise missiles (GLCM) and special operations forces. The net effect of these changes is a reduction of 8150 military authorizations.

The actual Air Force civilian growth for FY 88 is 1355. Of these, 1179 were transferred from the Army in connection with the creation of the Joint Military Medical Command in San Antonio, Texas. The remaining 176 civilian authorizations represent the difference between increases for force structure changes (GLCM, Air Reserve Forces modernization) and decreases for changes such as weapon system retirement, contract conversions, headquarters reductions, and accounting and finance center automation.

Again, these changes in manpower are a result of changing missions and programs. They do not represent a trade-off or conversion of military to civilian manpower.

COMBINED MILITARY TRANSPORTATION COMMAND

QUESTION: The Department of Defense plans to create a combined Military Transportation Command. While testifying before this Committee, former Secretary of the Navy John Lehman spoke strongly against this proposal. What is your view, Secretary Aldridge, about this plan?

ANSWER: The Air Force supports the establishment of the US Transportation Command (USTRANSCOM). Such a command offers many benefits to the nation. It provides the President, the Secretary of Defense, the Joint Chiefs of Staff and the CINCs a single, authoritative source for strategic mobility. The new command also offers a strong transportation operations organization to direct the further development of the Joint Deployment System. Finally, the USTRANSCOM organizational structure would retain operational authority and expertise at the component level, while providing strategic direction from Headquarters' level.

B-1B DEVELOPMENT

Question: Secretary Aldridge, it is clear from problems on the B-1B airplane that concurrency in development and procurement increases the risk of success. What lessons have you learned from this issue and how is it affecting your development and procurement plans?

Answer: Concurrency does entail a degree of risk. We assumed that risk in the B-1B program to meet the mandated 1987 Initial Operational Capability date at an affordable cost. The certain cost avoidance of a shorter acquisition cycle was judged to outweigh any potential cost penalty associated with necessary retrofits to the B-1B fleet.

In the case of the defensive avionics, we were not up to the challenge of bringing along an advanced, state-of-the-art system at an accelerated pace, and we have fallen well behind the original schedule. However, from an affordability standpoint, the B-1B's concurrent approach remains valid since most anticipated "fixes" are software intensive and relatively inexpensive. We simply cannot afford risk-free programs. Total program risk is dependent upon many factors, including concurrency. These risks must be clearly identified and aggressively managed. Our development and procurement plans are structured to accomplish this task.

B-1B RDT&E Funding

Question: The B-1 RDT&E estimate in development was for $3.122 billion. To date $3.07 billion has been provided. Why are congressional reductions in procurement being used as an excuse for B-1B development problems? Isn't it correct that the Congress has provided virtually all the R&D funding included in the original development estimate, and that the FY 88 request is in excess of the R&D development estimate provided to the Congress?

Answer: The Air Force has not used congressional cuts in procurement as an excuse for B-1B development problems. The total program RDT&E funding, including the baseline portion of the FY 88/89 RDT&E request, is $3.586 billion, which does exceed the original estimate. However, the total program cost, including procurement as currently funded, is $20.2 billion (FY 81) and well within the certified ceiling.

F-111 AVIONICS FUNDS STATUS

QUESTION: From FY 85 through FY 87, the F-111 Avionics Modernization Program (AMP) was provided $616.9 million. An additional $188.2 million is requested for FY 88. What portion of the previously appropriated funds have been obligated by fiscal year? What are the current plans to obligate any remaining balances?

ANSWER: The obligation status of the F-111 AMP as of 17 Apr 87.

Year	Program Amount	Unobligated	Remarks
FY 85	171.7	.6	Four small contracts involving engineering change propoals. Contract award April 1987.
FY 86	235.5	90.6	Unobligated funds involves three contracts: - 21.1 - for Attack Radar Set. General Electric (GE) contract scheduled for May 87. Delay due to excessive GE proposals to definitize balance of items for which long lead items were previously obligated. - 45.5 - for Terrain Following Radar. Texas Instruments (TI) contract scheduled for June 87. Delay also due to excessive TI proposal to definitize balance of items for which long lead items were previously obligated. - 16.1 - for Avionics Intermediate set. Westinghouse contract scheduled for Jul 87. Delay because of excessive Westinghouse proposal. - 7.9 Misc Apr 87 - Jul 88.

FY 87	209.7	166.7	- 13.8 forecasted for contract awards in May 87. - 18.8 forecasted for contract awards in June 87. - 6.4 forecasted for contract awards in Sept 87. - 124.9 Terrain Following Radar and Attack Radar Set Lot III awarded in Apr 87 to cover initial obligations for long lead items to avoid production break.

AMP has been kept on schedule despite difficulties in contract negotiations for two of the major components. Unobligated balances are required to cover items necessary to complete the number of kits contracted in accordance with full funding rules.

F-111 SELF PROTECTION JAMMER REPLACEMENT PLANS

QUESTION: What are the Air Force plans to replace the cancelled self-protection jammer program for the F-111 program? What are the funds from FY 86 through FY 88 request for this effort and the current status of obligations?

ANSWER: The Air Force cancelled its ongoing competition to provide an updated internal electronics countermeasures suite for its fleet of F-111 aircraft because the prices bid were too high and modification schedules too long. The requirement to provide electronic protection for the F-111 fleet remains valid. The current systems have [deleted]. The Air Force is exploring other, less costly, means of providing [deleted].

The Tactical Air Forces (TAF) have reviewed their near and far term requirements and, in conjunction with AFSC and AFLC, developed an investment strategy to meet the F/FB/EF-111 self-protection requirements within budgeted TOA. Near-term efforts will include: ECM pod procurement, acceleration of [deleted] [deleted] modifications to FB-111's to permit pod carriage and systems integration efforts.

In order to accomplish these near-term efforts, all remaining FY 86 and FY 87 funds will be required as will the FY 88 requested funds. Some reprogramming will be required since the new effort is primarily procurement oriented as opposed to the development concentration in the original program. FY 85 and FY 86 funds were appropriated under Special Access Required (SAR) program elements. The F-111 jammer program related funds remaining from these classified lines, the FY 87 appropriated amount and the FY 88 request are as shown below ($ in millions). None of these funds have been obligated.

	FY 86	FY 87	FY 88	TOTAL
Remaining Requested Funds	100.0	3.8	58.0	161.8

AC-130U PROGRAM

QUESTION: Mr. Secretary, the House Appropriations Committee provides $18.2 million in the FY 87 Supplemental for advance procurement for the AC-130U program, subject to later authorization. In its initial mark, the House Armed Services Committee did not authorize the program for FY 87. What will be the effect on the program if the Armed Services Committees do not provide for a supplemental authorization?

ANSWER: If we don't get the $18.2 million of advance-buy funding in 1987, the cost will increase. The program office intends to provide government furnished equipment (GFE) to the prime airframe and integration contactor to the maximum extent possible. GFE items will include the sensors, inertial platforms, radios, engines, generators, defensive systems, etc. Much of this equipment must be ordered 18 to 24 months in advance. If the program office does not have the funding or time to procure the GFE, contractor furnished equipment (CFE) will replace the GFE. If this happens, a minimum 20 percent cost increase will be incurred for this equipment.

AC-130U PROGRAM COSTS

QUESTION: If program costs are due to rise by 20 percent, if the program is not initiated in FY 87, will it still be affordable if it is delayed by one year?

ANSWER: The 20 percent cost increase affects only the $18.2 million requested for the FY 87 advance buy. The program office intends to provide Lockheed, the prime airframe and integration contractor, government furnished equipment (GFE) in source selection to the maximum extent possible. GFE items will include the sensor, inertial platforms, radios, engines, generators, defensive systems, etc. Much of this equipment must be ordered 18 to 24 months in advance. If the program office does not have the funding or time to procure this GFE, contractor furnished equipment will have to be used to replace the GFE and this will increase costs. Thus, if this funding is delayed, the schedule will slip six to nine months and the cost will increase by $3.6 million. With the exception of this amount, total program costs will remain unaffected.

AC-130U

QUESTION: Why is a prototype aircraft being requested in R&D concurrently with the procurement of 5 aircraft? Doesn't the experience with the B-1B program raise questions as to the logic of this type of concurrency?

ANSWER: In structuring the AC-130U program, we realized and considered the need for a high degree of concurrency. Although we generally do not advocate concurrent development and procurement programs, we believe that the urgent operational requirements for the Gunship justifies accepting some risk. Consequently, we structured the program to minimize this risk.

First, unlike the B-1 program, there is no risk associated with the basic aircraft since we are buying a C-130H airframe, an off-the-shelf, reliable airplane.

Second, we have recently conducted four similar programs. Twice we successfully modified C-130s into gunships (AC-130A and AC-130H aircraft). Additionally, the Special Operations System Program Office, the manager of the AC-130U program, is completing the other two programs using the same development/acquisition approach. The HH-60D Night Hawk and MC-130H Combat Talon II programs procured existing airframes and modified them with specially tailored avionics systems.

Third, a large percentage of the avionics equipment and associated software is off-the-shelf.

Two of the over 30 subsystems do present some risk. The fire control radar and the all-light-level TV sensor will be the critical path for the developmental effort. However, all competing contractors are confident these items will present no major stumbling blocks. In fact, all of their proposals call for delivery of all 12 new gunships before the end of 1992. The bids are based on concurrency, and indeed, this concurrency is needed to keep the program costs to the lowest possible level.

Fourth, to minimize the time required for software development and the attendant risks, we will take advantage of the software being written for the MC-130H Combat Talon II and for the AC-130H and MC-130E upgrade programs. Furthermore, the avionics hardware with the exception of the fire control radar has a large degree of embedded software that is already developed. To further reduce risk in this area, and to avoid the integration problems that the B-1 faced, a system integration laboratory for hardware and software integration is planned. Contractor ground testing and shakedown flight testing at the contractor's facility will further reduce the risk and assist in providing a workable system before starting government flight tests.

The contractor will be required to retrofit any changes resulting from test and evaluation into the production aircraft. Extending the program to reduce concurrency would increase the overall program costs by drawing out the work force and eliminating the cost efficiency of concurrent production.

In conclusion, the scope of this program is not comparable to the B-1 program. We have successfully built gunships before, and we are confident we can do it again. More importantly, in order to comply with Section 152 of the FY 86 Authorization Act to revitalize special operations forces by 1991 and to correct critical deficiencies in our current force, the Air Force has proposed a gunship program that will deliver aircraft as rapidly and as cost effectively as is prudently possible.

IMPACT OF DELAYING C-17 PROGRAM

QUESTION: In its Report accompanying the Concurrent Resolution on the Budget, the Senate Budget Committee recommends deferring all new starts until 1990. What would be the impact on the C-17 program if the Appropriations Committee followed the guidance of the Budget Committee?

ANSWER: The C-17 is not a new start because aircraft procurement funds were appropriated in FY 87 to initiate the program. However, to defer the C-17 program until 1990 would cause significant programmatic impacts since the Full-Scale Engineering Development (FSED) and production programs are highly integrated. Specifically, a complete restructure of the test program would be necessary. Production aircraft P1 thru P4 are currently planned to fly 39 of the 57 months in the test program. Deferring delivery of these aircraft would increase the test program to 65 months and slip Initial Operational Capability to early FY 95.

Other impacts include increased overhead and inflation costs associated with a two-year production deferment and the stretch-out of the program. Due to the break in production, the commensurate production line learning is lost between the test articles and P1. In addition, production restart costs are required in FY 89. This program delay would require a complete contract restructure/renegotiation for both FSED and production.

The estimated total cost impact to the program is an additional $555 million in FSED and $2.9 billion in production.

C-17 PRODUCTION RATE & UNIT COST

QUESTION: The Air Force request for C-17 is for the first two aircraft at $308.9 million per aircraft. At what production rate will the unit cost of these aircraft drop below $200 million in FY 88 dollars? In what year will that first occur?

ANSWER: The $308.9 million is the net P-1 unit cost (FY 88 budget P-5 documentation) for the first two C-17 aircraft. This figure not only includes the aircraft cost, but also includes funds budgeted for engineering changes, non-recurring costs (tooling and start-up), support equipment, technical data, training equipment, and the prior year advance procurement credit.

The C-17 recurring unit cost in FY 88 dollars drops below $200 million for aircraft delivered in September 1992 at a production rate of one aircraft per month.

UNIT COST IMPACT OF DELAYING C-17 PROGRAM

QUESTION: What would be the impact on the overall unit cost of the C-17 if the program is deferred until 1990? At what unit cost does the program become unaffordable? How close is the C-17 to being an unaffordable aircraft given the pressing constraints on defense spending?

ANSWER: The overall acquisition unit cost of the C-17 would increase from the current $167 million (Then Year) to $183 million (Then Year). A unit cost that identifies affordability of the C-17 is not an issue. The Air Force has a requirement that only the C-17 can meet and structured a fiscally responsible acquisition program around that requirement. Therefore, the C-17 request submitted in the FY 88 President's Budget maintains an affordable program.

C-17 START-UP COSTS

QUESTION: Why are the start-up costs on the airframe so high, but those of the engines and other components not extremely high? (P-5 Document p, 88) Please break out the $90.9 million non-recurring costs displayed in the justification material.

ANSWER: The costs indicated in the P-5 Document for airframe, engine, and other components are the recurring costs associated with the first two production aircraft. The airframe line includes labor, material, and other manufacturing activities required to fabricate and assemble the first two production (early learning curve) aircraft. The airframe line cannot be compared to off-the-shelf manufactured items. The engine costs result from a three-year, fixed-price contract for a commercially available (in routine production-down the learning curve) engine, in a competitive market. The component avionics costs also reflect primarily off-the-shelf equipment. The $90.9 million includes $75.5 million for production planning and $15.4 million for the Industrial Modernization Incentive Program (IMIP). Production planning includes the effort to convert engineering design drawings to fabrication/assembly orders, and the step-by-step processes from the work center to the shop floor. Also included are tooling, scheduling, project control, installation and electrical planning, and updates to drawings for design changes. IMIP activities include government investment to incentivize the contractor to implement modernized cost-saving production techniques into the manufacturing process in order to reduce out-year production costs to the government.

F-15 & ATF PROCUREMENT PLANS

QUESTION: Secretary Aldridge, this subcommittee received testimony earlier this year from Air Force witnesses on the Advanced Tactical Fighter (ATF) program. It is also noted that the Air Force plans to buy 400 Advanced Tactical Aircraft (ATA). Why then it is necessary to keep buying the F-15E dual role fighter? You have stretched planned procurement of the F-15E from 48 to 42 aircraft per year. In what year will the Air Force complete its purchases of F-15E and how does this match up with purchases of the ATF and ATA? Will you be buying both ATF and the F-15 at the same time? Considering plans not to build to 40 tactical air wings, have you cut your planned procurement of the F-15E? If not, why not? What is the effect on procurement of the ATF due to the decision to stay at 37 wings?

ANSWER: The ATF and F-15E are designed for different missions each requiring unique capabilities. The ATF is an air superiority fighter designed to engage and defeat enemy aircraft. The F-15E is a dual role fighter, designed for both air-to-air and air-to-ground missions, but its primary purpose is interdiction. In the interdiction mission the F-15E will provide capability to attack and destroy high value ground targets in the heavily defended enemy rear area at night and in adverse weather.

The planned total buy of 392 F-15Es will augment the range and payload capability we currently possess with the F-111. Our current interdiction capability is insufficient, and since the F-111 is out of production, an in-production aircraft, the F-15, was modified to meet this near-term requirement. At the original production rate (60 per year), F-15E procurement would have been complete before we bought the ATF. Budget reductions have forced a stretchout of F-15E procurement, nevertheless, the total requirement for interdiction capability remains unchanged. No other current production or planned aircraft has the interdiction capability of the F-15E. To stop F-15E procurement prematurely would be to accept a serious shortfall in this mission area. Under current plans, F-15E purchases will be complete in 1995 or 1996, and full-rate production of the F-15E and ATF will not overlap. The ATA, with suggested Air Force enhancements, could replace the F-111 sometime after the year 2000.

The decision to stay temporarily at 37 tactical fighter wings

(TFWs) does not affect planned procurement quantities of either the F-15E or the ATF. The requirement for the specialized capabilities of these two aircraft is threat driven. Both will replace or augment capability contained in the current 37 TFW force. The Air Force has not abandoned the 40 TFW goal. When fiscal pressures relax in the future, the AF will resume growth toward that goal.

MH-53J SOF MODIFICATION

QUESTION: I understand that initiative 17 stipulates that the Army will have jurisdiction over all rotary wing aircraft for special operations. With that in mind, does the Air Force plan to turn over all its modified MH-53J aircraft to the Army? Why is the Air Force doing this modification if the Army has the rotary wing special operations mission?

ANSWER: Implementation of Initiative 17 transfers the rotary wing special operations mission to the Army, not assets. The Air Force will continue to provide rotary wing support to special operations until the Army is capable of assuming the mission. Air Force modification of H-53 helicopters to the MH-53J configuration reflects congressional and SecDef guidance to revitalize the special operations capability in the most cost effective manner by 1991.

LANTIRN CONTRACT

QUESTION: Please explain the terms and conditions of the LANTIRN contract regarding any adjustments in the number of pods to be purchased in total and in any fiscal year? What would be the effect on the contractual agreement if the production rate of targeting pods was held at the FY 87 level?

ANSWER: The LANTIRN firm fixed-price (FFP) production contract does not contain any provisions for deviation from the negotiated pod quantities or production rates. The contract does contain a provision for insufficient funding of the negotiated options (up to 10% of the option price each year in FY 86-90). This provision limits the total cost increase to the program to $249 million provided the reduced program content is restored in FY 91-92. However, if any funds are cut from the program, the Air Force would be required to renegotiate both that year's option and all future options, even though the reductions are within the provisions of this clause. We would be faced with associated cost increases (up to the $249 million limit), quantity reductions and schedule adjustments.

If the FY 88 targeting pod production rate is limited to the FY 87 level of seven pods, the 10% limit of the aforementioned provisions would be exceeded. Therefore, it would require full renegotiation of all remaining firm, fixed-price options with associated cost and schedule impacts. Any change in funding or schedule will delay fielding this urgently needed Tactical Air Forces night attack capability.

LANTIRN COSTS

QUESTION: What are the anticipated costs or savings resulting from reductions to both nav and targeting pods?

ANSWER: The production quantities and rates specified in the contract are structured to maximize the number of navigation and targeting pods which can be procured within the Air Force LANTIRN budget. Any changes to navigation or targeting pod quantities or production rates would require complete renegotiation of both that year's option and all future options with associated cost increases, quantity reductions and schedule adjustments. At this time, we cannot accurately assess the cost impact which would result from reopening the favorable LANTIRN contract.

STATUS OF AIR DEFENSE COMPETITION PROGRAM

QUESTION: Last year the Air Force Air Defense Competition winner was a modified F-16 aircraft. What is the status of this program? Have there been any adjustments in the program schedule or in the composition of the modification? If yes to either question, please provide a detailed response and the anticipated costs or savings.

ANSWER: The F-16 Air Defense Fighter modification program is progressing on schedule. The aircraft identified for flight test has entered modification to support flight test initiation in December 1987. All engineering and initial equipment production efforts are progressing as required to support an accelerated production. This will maximize efficiency at the modification depot. The final configuration being implemented reflects the coordinated requirements of the Tactical Air Forces, the North American Air Defense Command and the National Guard Bureau.

The six hundred gallon fuel tank and drag chute were determined to be not required. The credit to the contract for that adjustment is being allocated to peculiar and common support equipment, training devices, and spares mod kits, all of which were identified as provisioned items in the model contracts prior to the final source selection decision. Overall, the credits from airborne equipment are offset by the debits for training and maintenance equipment. All funds required to procure modification kits for the Air Defense Fighter (ADF) have been authorized and appropriated in FY 86 and FY 87. The procurement schedule is being accelerated in order to procure modification kits prior to expiration of funds.

Since the modification of an F-16A was the most economical of all ADF alternatives, additional funds which had been planned/budgeted for an Air Defense Competition based on procuring a new aircraft have been withdrawn. Thus, the FY 88/89 PB contains only those funds required to modify and support the F-16A in performing the ADF mission.

F-4 MODIFICATION PLANS

QUESTION: What are the current Air Force plans on the F-4 modification for air defense? If the Air Force still has no plans to modify an F-4 aircraft for air defense, why were these funds not suggested for recission? Is the Air Force illegally impounding these funds?

ANSWER: The Air Force does not plan to use the RDT&E and procurement funds that Congress appropriated in FY 87 to modify F-4Ds for air defense. The direction of the program has changed as a result of the air defense competition. The Air Force has determined that the F-4Ds will be retired before the benefits of a full modification program would be realized. We will request that the RDT&E funds be reprogrammed to higher priority items. As for the procurement funds, the Air Force is currently considering a number of plans to enhance the capability and reliability of Air National Guard aircraft and will send Congress their recommendations about realigning these funds soon. The Air Force has not illegally impounded these funds.

STATUS OF AGM-130 PROGRAM

QUESTION: What is the current testing status of the AGM-130 program? The Committee understands that the AGM-130 has failed every flight test thus far in the test program. What are the Air Force plans to restructure this program? How much prior year monies are still unobligated as of this date?

ANSWER: Although numerous problems have occurred in development, no major technical problems have surfaced that would prohibit completing development of the AGM-130. These problems were encountered in the first three engineering test vehicle launches. All problems have been defined, and fixes are in place. Most of the fixes were verified in the third flight which was a total success except for failing to eject the rocket motor. A few fixes have not been flight verified due to the loss of control at launch of the fourth engineering test vehicle on 16 April 1987. This failure of the fourth engineering development vehicle has consumed the three or four months of management reserve time available in the testing schedule.

The contractor is confident enough in his design to test two full up weapons at his risk as part of the actions leading to a viable restructured program. The Air Force has accepted the contractor's (Rockwell) offer to launch the first two guided test vehicles (GTVs) at no risk to the government without repeating the fourth engineering test vehicle launch. The contractor will replace the guided test vehicles or reimburse the Air Force if they fail. First launch will be in July.

With successes in the next two launches, we can maintain the planned schedule. The special tooling and special test equipment (ST/STE) contract can be awarded in January 1988. DT&E and IOT&E of the TV version on the F-4E should be completed in time to make the initial production decision in May 1988, as previously planned. FY 86 procurement funding of $14.274 million for ST/STE and FY 87 procurement funding of $14.897 million for forty AGM-130 missiles for operational tests have not been obligated.

SPACE SHUTTLE OPERATIONS PROGRAM BREAKOUT

QUESTION: Within Missile Procurement Air Force, Space Shuttle Operations, the Air Force is requesting $55.1 million for "Other Support Equipment." Please identify what this $55.1 million will buy and why it is needed in FY 88 in light of the delays in the shuttle program.

ANSWER: The $55.1 million requested in FY 88 Missile Procurement Air Force for Space Shuttle Operations "Other Support Equipment" is required to procure equipment necessary to support DOD operations once shuttle flights resume in 1988. This equipment can generally be grouped under shuttle Airborne Support Equipment

(ASE), shuttle secure-operations ground systems, mission planning/flight preparation and support systems, payload integration minor hardware and Shuttle Payload Integration Facility items.

ASE funds ($29.5 million) will procure: (1) modification kits for the Communication Interface Equipment (CIE) used onboard the shuttle for all DOD missions to provide a predeployment standard encrypted commanding/telemetry interface between the orbiter and military spacecraft; (2) a Dedicated Payload Communication Link (DPCL) system to provide payload data contact with the ground center when orbiter-payload distances exceed twenty miles (current orbiter limitations of twenty miles (max) preclude payload data reception during critical post-deployment orbital transfer burns); (3) a modification to the Orbiter Experiments Autonomous Supporting Instrumentation System that measures the orbiter payload bay launch/ascent environment on DOD payloads and upper stages; (4) a modification to the orbiter Television and Text & Graphics System (TAGS) to provide a secure capability for DOD operations; and (5) Support Control Equipment to control simultaneously the CIE, DPCL and secure TV/TAGS and permit payload sharing of orbiter services. These ASE procurements were delayed from 1987 due to congressional reductions in the FY 87 President's Budget associated with the shuttle stand down. The funds are required to complete these activities in FY 88 and preclude an impact on DOD shuttle operations in 1988 and beyond.

Shuttle secure-operations ground system funds ($15.0 million) will be provided to the NASA to satisfy their requirement to modify simultaneously secure NASA mission control systems/areas to ensure operational compatibility and configuration control with non-secure systems/areas. NASA funds the generic upgrade/modification to these areas, and DOD is responsible for the additive cost necessary for NASA to meet our security requirements. Due to the extended shuttle stand down and resultant congressional reductions in the FY 87 PB, we delayed DOD obligations to NASA wherever possible. Regardless of additional delays in shuttle flight resumption, these modifications can't be delayed further without cost and impact to the DOD.

PAM-D II UNIT AND DELIVERY SCHEDULE

QUESTION: The PAM-D II contracts were awarded in January 1985 for a total cost of $169.9 million. How many PAM-D II's does this money buy, cost per unit and what are the delivery schedules for the full-up PAM-D IIs?

ANSWER: The PAM-D II multi-year contract was to procure 28 upper stages to transfer Global Positioning System (GPS) spacecraft from their shuttle parking orbit to final operational orbit. There were two contracts awarded for a total of $171.6 million to procure the upper stages and required launch and orbital support services. The firm, fixed-price procurement of 28 PAM-D IIs was $144.1 million or $5.1 million per unit. Launch and orbital support was cost-plus fixed-fee and priced at $27.5 million. As a result of the Delta II booster contract award, all 28 PAM-D IIs are no longer required, and we have begun partial termination of the PAM-D II contract. Sixteen of the 28 PAM-D IIs originally on contract will be delivered as full-up flyable units. The first two units are scheduled to be delivered in November 1987, with delivery of all sixteen by November 1988. Eight will be integrated to shuttle-assigned GPS spacecraft and eight placed in storage pending a decision on disposition of these surplus stages.

IIR Maverick Cost Breakout

QUESTION: The Air Force recently awarded a split buy to two contractors for the IIR Maverick. Based on this award, what is the new "Missile Hardware Recurring" costs breakout?

ANSWER: The recurring costs for Hughes for the FY 87 buy total $199 million for 1556 AGM-65D and 600 AGM-65G missiles. The recurring costs for Raytheon for the FY 87 buy total $140 million for 1203 AGM-65D missiles.

AIM-7F/M SPARROW CONTRACTING METHOD

QUESTION: The Air Force is requesting $99.5 million for 558 AIM-7F/M Sparrow Missiles within the FY 88 budget. The Committee understands that the Department plans to award a negotiated sole source contract for the FY 88 buy, as opposed to the split buy awarded for the FY 87 approved program. Why is the Department changing its contracting method? At what point does the Department feel they could again negotiate a split buy as opposed to a sole source? What is the incremental cost of an additional 400 missiles? 600 missiles? 800 missiles?

ANSWER: The Department is not changing its contracting methods for the FY 88 request of $99.5 million for 558 AIM-7M Sparrow missiles. The FY 88 buy is not planned to be a negotiated sole source contract as the question implies, but will be a competitive award to one or both contractors, depending upon the total (AF/Navy/FMS) funding level and quantity. Both Sparrow contractors have FY 88 firm, fixed-price options on their FY 87 contracts. The FY 88 award will, therefore, be competitive, whether dual or single source.

As to the point at which two sources can be maintained, the nominal minimum sustaining rate is 600 guidance and control sections per contractor per year. A total AF/Navy/FMS quantity approaching 1200 missiles, therefore, would be required to economically maintain two sources in FY 88.

Finally, the incremental cost of additional missiles (based upon the FY 88 PB request and known FMS quantities) is estimated to be as follows: $51 million for an additional 400 missiles; $94 million for an additional 600 missiles; and $121 million for an additional 800 missiles. These estimates are based upon a single source for the additional 400 missiles, and maintaining dual sources for the 600 and 800 missile increases.

TITAN IV/IUS LAUNCH

QUESTION: What is the current estimate of the first Titan IV/IUS launch from Cape Canaveral? If this date holds, how many and on what dates are additional Titan IVs to be launched from Cape Canaveral in FY 88 and FY 89?

ANSWER: Two launches are planned through FY 89. The first Titan IV/IUS launch is on schedule for October 1988, and the second in April 1989.

QUESTIONS SUBMITTED BY SENATOR PROXMIRE

KC-135 MANEUVERING & KC-135 CREW SAFETY

QUESTION: Isn't it correct that KC-135's are not, and were never, designed to perform low-level aerobatic maneuvers? According to engineers, navigators and pilots, such low-level aerobatic maneuvers are dangerous for a KC-135 to perform because it wasn't designed for that. Aren't we unnecessarily risking the lives of these crew members with this aerobatics team?

ANSWER: The KC-135 was not designed to perform aerobatic maneuvers. The SAC demonstration program does not include aerobatic maneuvers. Its purpose is to show the public and our people limited elements of the combat mission profiles of our aircraft.

Demonstration profiles were designed by highly experienced SAC pilots, and were validated by the demonstration crews. The profiles that resulted were well within the safe performance capabilities of the aircraft and were never intended to exhibit nor did they approach the maximum performance capabilities of the aircraft. Specific parameters were established for compliance by the demonstration crews. They were tasked to adhere to all provisions of applicable FAA, Air Force and SAC regulations. Flight manual restrictions would not be exceeded, and all appropriate local and FAA waivers would be obtained for the demonstrations. They were further directed that weather conditions would be no less than 3000 feet ceiling and at least five miles visibility. Crews were limited to a minimum of 200 feet above the runway. Minimum airspeed was to be no lower than stall speed plus 30 percent for the specific aircraft configuration.

SAC demonstration crews are not put at risk in the performance of these maneuvers. They are comprised of the most skilled, highly experienced aviators available. In addition to complying with the restrictions listed above, the crews are required to practice maneuvers in the simulator (if available) and then in flight, at high altitude, prior to stepping down to airdrome demonstration altitudes.

WARRANT vs COMMISSIONED OFFICERS

QUESTION: The Army uses Warrant Officers to fly most of its aircraft. These personnel spend most of their careers flying, and therefore require fewer commissioned officers per flying billet. They also experience high retention. Why can't the Air Force adopt a warrant officer program?

ANSWER: The Air Force has not used Warrant Officers as pilots since World War II. The present system allows the Air Force to maintain the highest possible standards to meet rapid advancement in technology, requiring the most capable people available to control complex weapon systems.

Army aviation is an extension of its ground elements with key decisions made by ground commanders. The Air Force pilot is a first line supervisor, often working independently, controlling a highly sophisticated weapon system with responsibility to react to emergency and isolated situations. Also, responsibilities associated with command of the nuclear mission and high cost aircraft dictate that only the most qualified and competent individuals perform these duties. The need for aviation managerial and leadership expertise from across the Air Force spectrum of roles and missions is far greater than the limited role of Army aviation.

Use of the Warrant Officer grade would suggest lower educational prerequisites for rated training below college degree level, with a consequent lowering of rated training standards. Educational and training standards are driven by increasing complexities and responsibilities associated with USAF weapon systems. Further, it is essential that leadership be drawn from an officer force which has already received the education and training that prepares them for senior positions in a highly complex Air Force.

QUESTIONS SUBMITTED BY SENATOR BYRD

COMPARISON OF A-7 AND A-16 FOR CLOSE AIR SUPPORT

QUESTION: In addition to air combat by fighter aircraft, the Air Force provides close air support (CAS) for the Army. The current A-10 CAS plane is to be replaced by a more survivable aircraft. Both an improved version of the A-7 attack aircraft and an attack version of the F-16 fighter (A-16) have been proposed for the CAS mission. In future threat environments, combat effectiveness and aircraft survivability in CAS missions will require munitions and weapon systems that can be used at much greater stand-off ranges than presently possible. Collaboration between the Air Force and the Navy in the development of accurate stand-off weapons is an obvious priority for both Services. Another critical requirement for both Services is the acquisition of modern trainer aircraft; a requirement highlighted by the Air Force's recent experience with the unsuccessful T-46 trainer program. What are the relative advantages and disadvantages of the proposed improved A-7 and the A-16 for the close air support mission?

ANSWER: The improved A-7 and A-16 will both be highly capable CAS aircraft that will have the lethality and survivability necessary in the 1990s and beyond. Both aircraft are roughly comparable in terms of air-to-ground performance and payload, and each will be capable of carrying the full range of tactical air-to-ground weapons. Both will have night attack capability, although only the A-16 is LANTIRN capable. The improved A-7 will have the Low Altitude Night Attack (LANA) system or some other FLIR system for night operations. The A-16 will be capable of supersonic flight while the A-7 will not, but supersonic speeds are not considered necessary or even desirable for the CAS mission.

The improved A-7 will be approximately one-half the cost of a new A-16 ($6.2 - $6.6 million vs. $14 million). Upgrade of our entire A-7D fleet, approximately 350 aircraft, is highly desirable from a cost standpoint; however, additional CAS aircraft will be required to meet our commitments to the Army. Missionization of the in-production F-16, to provide a CAS specialized A-16, appears to be the most timely and cost effective way to obtain this important capability.

COMPARISON OF CLOSE AIR SUPPORT AIRCRAFT

QUESTION: Compare the proposed A-7 upgrade, the proposed

A-16, the Army's AH-64 Apache attack helicopter, and the Marine Corps AV-8B Harrier II to the current A-10 close air support aircraft with respect to combat capabilities; e.g., sortie rates, runway requirements for take-off and landings, and ability to kill armored vehicles.

ANSWER: The A-7 upgrade and A-16 have significant advantages over the A-10 for the 1990s Close Air Support (CAS) mission. These advantages include much greater survivability, shorter runway length for takeoff, night navigation and attack capability, and more rapid and accurate target acquisition. Both the AH-64 Apache and AV-8B Harrier are designed to do specific missions for other Services. The Air Force cannot adequately comment on either the AH-64 or the AV-8B, since they are not USAF aircraft.

STANDOFF WEAPONS DEVELOPMENT

QUESTION: Identify and describe the Air Force's standoff weapons programs now in development that offer the best prospects for deployment within the next five years. To what extent is the Air Force working with the Navy and our NATO allies in the development of standoff weapons?

ANSWER: The Air Force has the requirement for standoff weapons in three general range categories: close-in, short and long. The close-in category allows aircraft to avoid overflight of the target and includes such weapons as the Low Level Laser Guided Bomb (GBU-24), GBU-15 and MAVERICK. We are currently planning improvements for all of these weapons. GBU-15 will soon be integrated with the I-2000 warhead to improve its hard target kill capability. The Air Force has requested Conventional Defense Initiative (CDI) funds to begin integration of lock-on-after-launch seekers with both MAVERICK and the GBU-24. If CDI funds become available, we will demonstrate a millimeter wave seeker on MAVERICK in the FY 88-89 time frame and begin integrating an autonomous, imaging infrared seeker with GBU-24 for production beginning in FY 91. Lock-on-after-launch seekers on these two weapons will greatly improve their standoff capabilities and allow multiple launches on a single pass.

Short-range standoff weapons can be delivered from outside the terminal threat area. In this category, we are currently fielding the High-speed Antiradiation Missile (HARM) and developing the AGM-130, a powered version of the GBU-15 with both electro-optical and imaging infrared, data link guidance. The HARM, which was jointly developed by the US Navy and US Air Force is a lethal defense suppression weapon employed by the F-4G Wild Weasel. AGM-130 provides increased standoff against targets such as transportation chokepoints, ships and POL. First delivery of AGM-130 will be in FY 89. HARM is being upgraded to counter more modern threats through the HARM BLOCK IV seeker upgrade program and the Lower Cost Seeker program. **[Deleted]** **[deleted]**. The NATO cooperative Modular Standoff Weapons (MSOW) program is expected to field two short-range dispenser weapons, one fixed target and one mobile target, the first by FY 94. This program involves seven NATO nations and will greatly enhance NATO conventional standoff weapons capabilities by the mid-90s.

Long range standoff weapons allow delivery aircraft to avoid both FEBA and terminal area defenses. In this category, we have worked with the Navy to integrate HARPOON on the B-52. We are also considering integrating HARPOON or the Norwegian-built PENGUIN MK III on F-16s for tactical support of maritime operations pending the outcome of an ongoing Foreign Weapons Evaluation. TACIT Rainbow is a long range, unmanned vehicle that will be either air or ground launched. It is a defense suppression weapon with extended range and loiter capability. Deliveries of this weapon will begin [deleted]. The seven nation NATO cooperative MSOW program will produce a long-range, fixed-target dispenser variant by the mid-90s.

T-37 REPLACEMENT

QUESTION: What plans does the Air Force have for replacing the T-37 trainer with a more modern aircraft? What are the prospects for developing or procuring a trainer that could be used by both the Air Force and the Navy?

ANSWER: The Air Force has no plan to replace the T-37 (Primary Trainer) in the near term. We've programmed funds in the FY 88 President's Budget submission to begin a Service Life Extension Program (SLEP) on the T-37. The SLEP will add approximately 15,000 hours to the service life of the T-37 and ensure it remains structurally viable well into the 1990s.

In accordance with congressional direction and a standing Memorandum of Understanding between the Air Force and the Navy, we monitor and participate in each other's trainer aircraft development and acquisition programs. We will continue to work together and explore possible joint acquisition where both services' requirements can be met.

DOT&E OVERSIGHT IN B-1B DEVELOPMENT

QUESTION: The Air Force has taken delivery of about 30 aircraft (of which only one is reportedly fully operational) in the B-1B strategic bomber program. The program is officially estimated to cost $20.5 billion (FY 81$) for a total of 100 aircraft. $802 million is included in the FY 88/89 budget request to conduct additional flight tests, to fix defective aircraft parts, and to correct major problems in the B-1B's electronic jamming equipment. What role did the Office of the Director of Operational Test and Evaluation (DOT&E) play in assessing the B-1B's progress and informing the Secretary of Defense? Some have questioned the independence of DOT&E, believing that its bureaucratic loyalties of DOD have lessened its effectiveness. It has been suggested that the General Accounting Office or some other agency should provide independent oversight of weapons systems development. How would you respond to such comments?

ANSWER: The Air Force has taken delivery of 47 B-1Bs, all of of which are fully SIOP capable and would execute their assigned wartime missions if called to do so. $596 million of the B-1B FY 88/89 RDT&E request is for completion of the baseline development efforts. The remaining $206 million is for two enhancements beyond the baseline, the Forward Looking Infrared and ECM upgrades. The DOT&E has been a regular participant at the Secretary of Defense Secretarial Program Reviews of the B-1B program over the past several years. Questions regarding the DOT&E's independence and the postulated need for additional General Accounting Office oversight should be directed to the principal.

ACQUISITION STRUCTURE AND STRATEGY

QUESTION: A recent House Armed Services Committee Report (the B-1B: A Program Review, March 30) concluded that the B-1B experience raises questions about the stability and execution of programs that incorporate more advanced technology. The B-1B was not considered to be pushing the state-of-the-art, yet still has had significant management and development problems. What suggestions would you make to Congress as it contemplates alternatives to the present acquisition structure and strategies for programs currently in research and development?

ANSWER: The B-1B acquisition strategy is based on the Air Force acting as the integrator through an associate contractor arrangement vice a prime contractor acting as the integrator through a subcontractor arrangement. As a result, the Air Force and the taxpayer avoid the loading (i.e., program management of subcontractors, overhead, and profit) charged by the prime contractor. This cost avoidance is estimated at $800 million.

The Air Force has not experienced significant difficulties integrating the airframe, engines or avionics systems, and the Air Force has successfully assumed a similar role in other major acquisitions such as the Minuteman and Peacekeeper. Even though it added to program risk, the Air Force is satisfied with the results of this approach; however, its use in future acquisitions should be carefully considered on a case-by-case basis in the context of total program risk and cost.

The acquisition strategy for programs in research and development, such as the C-17 and the Advanced Tactical Fighter (ATF) has been tailored to the anticipated technical and schedule risk. On the one hand, the C-17, considered a low-to-moderate risk effort, entered full-scale development (FSD) shortly after program go-ahead. On the other hand, the ATF effort, considered a moderate-to-high risk program because it seeks to incorporate more advanced technology, will build prototype aircraft and conduct an extensive fly-off before committing to FSD and production.

The acquisition environment has become unhealthy because of excessive and uncoordinated change from many sides. After reviewing the process extensively, the Packard Commission concluded that the upper management levels of the acquisition process (Congress, DOD and Service staffs) should stick to broad strategic policies. Program implementation details should be left to operating levels. The creation of USD(A) was recommended by the Commission and legislated by the Congress to provide a single focal point for the DOD acquisition process. A part of his charter is to review acquisition legislation with an eye toward reestablishing the accountability concept endorsed by the Packard Commission. The Air Force has been working closely with USD(A) to identify legislative adjustments which might help achieve this goal. Specifically we have identified changes which will enhance the USD(A)'s ability to establish major program policy and hold program managers more accountable for results. In addition, we have identified ways to simplify the contracting process and provide greater latitude for overall action.

In July 1986, the Secretary of the Air Force established an acquisition streamlining panel to evaluate ways to streamline the the acquisition system and to establish a framework for implementing elements of NSDD 219. The panel's recommendations focused on three broad areas: establish the Air Force Acquisition Executive System (AFAES), revise the acquisition process and modify the management approach. The AFAES has been implemented, and the Under Secretary of the Air Force is currently the Acquisition Executive. The AFAE supervises the AF acquisition system, exercises direct oversight of selected programs, appoints Program Executive Officers (PEOs), chairs the Air Force Systems Acquisition Review Council (AFSARC), and represents the AF on the Defense Acquisition Board (DAB). PEOs and Executive Programs have been approved by the AFAE as shown below:

PROGRAM	PEO
National Aerospace Plane	Air Force Systems Command Commander
Advanced Medium Range Air-Air Missile	Armament Division Commander
Advanced Tactical Fighter, C-17, and B-1B	Aeronautical Systems Division Commander
Peacekeeper and Small ICBM	Ballistic Missile Office Commander
Joint Surveillance and Target Attack Radar System	Electronic Systems Division Commander
Milstar and Boosters	Space Division Commander
Science and Technology	Science and Technology Director (HQ AFSC/DL)
Spares Program	Air Force Logistics Command Commander
F-111	Sacramento Air Logistics Center Commander
C-135	Oklahoma City Air Logistics Center Commander
Inter-Service/Agency Automated Message Processing Exchange	Communications Command Commander

We are currently staffing a number of panel recommendations that will help promote centralized acquisition policy development and oversight, decentralized execution, delegation of authority to the lowest responsible level consistent with effective oversight management by exception, regular communication with a full and open flow of information up and down the chain of responsibility and accountability for individual performance.

QUESTIONS SUBMITTED BY SENATOR REID

PLANNING FOR 40 TACTICAL FIGHTER WINGS

QUESTION: The 474th Tactical Fighter Wing deployed at Nellis Air Force Base is charged with an important role in defending the security of the United States and our allies. The Air Force maintains the interim goal of 40 fighter wings and evidently considers a force of that size as necessary to protect the United States and our allies. How can the United States afford to make cuts that have previously been characterized as an essential part of our force structure?

ANSWER: Congressionally imposed fiscal constraints force us to take the cuts. The Air Force's established priorities are to modernize strategic forces, improve readiness and sustainability of the general purpose forces, increase airlift capability, modernize and expand tactical forces and improve our ability to operate efficiently in space. In order to maintain properly balanced forces to meet DoD Defense Guidance, guided by these priorities, it is necessary to reduce conventional force structure to accommodate the FY 87 congressionally approved budget which was $9B below the Air Force request. The FY 87 mark reduced the funding baseline for development of programs in FY 88 and beyond.

The FY 88 AF budget request is $4.5B below the request for FY 87 and $10B below the FY 88 column of the FY 87 request. These reductions in funding have forced decreases in both procurement and operating budgets. The end result is a smaller general purpose force that is both ready and sustainable within existing obligational authority.

DEACTIVATION/REACTIVATION OF AIR FORCE UNITS

QUESTION: It is my understanding from my conversations with Secretary Aldridge that if the 474th were deactivated and an additional wing were added to the force structure tomorrow, Nellis Air Force Base would be one of the first choices for the deployment of that wing. It therefore seems likely that the 474th will be replaced by another wing at Nellis Air Force Base sometime in the future as additional wings are added to the Tactical Fighter Force according to Air Force plans. The Air Force has stated that the deactivation of the 474th is a response to budgetary pressure, that is, a means to effect a savings. Yet, by any calculation, it would be less expensive to leave the 474th at Nellis than to deactivate it and replace it later with another wing. How can the Air Force characterize a deactivation which will force us to spend more money in the long run as a savings?

ANSWER: Faced with two consecutive years of negative growth in our budget, the Air Force has decided to delay growth above 37 Tactical Fighter Wings in the near term. The deactivation of the 474th TFW is necessary to reduce the existing force to 37 wings by the end of FY 88 because of fiscal constraints. The Air Force continues to plan for growth to 40 TFW as an interim objective, and will resume growth toward that objective as soon as fiscally possible.

SUBCOMMITTEE RECESS

Chairman STENNIS. The committee will take a recess now, subject to the call of the Chair.

[Whereupon, at 11:08 a.m., Tuesday, April 21, the subcommittee was recessed, to reconvene at the call of the Chair.]

DEPARTMENT OF DEFENSE APPROPRIATIONS FOR FISCAL YEAR 1988

THURSDAY, APRIL 23, 1987

U.S. SENATE,
SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS,
Washington, DC.

The subcommittee met at 9:30 a.m. in room SD-192, Dirksen Senate Office Building, Hon. John C. Stennis (chairman) presiding.

Present: Senators Stennis, Proxmire, Sasser, Garn, D'Amato, and Cochran.

DEPARTMENT OF DEFENSE

DEPARTMENT OF THE AIR FORCE

STATEMENT OF HON. EDWARD C. ALDRIDGE, SECRETARY OF THE AIR FORCE

MILITARY SPACE PROGRAMS

(CLOSED SESSION)

OPENING STATEMENT OF CHAIRMAN STENNIS

Chairman STENNIS. Our subcommittee will please come to order.

I want to welcome our witnesses here today. This is a highly important subject and we are going to try to operate with as few breaks and interventions as possible.

If we get to having rollcall votes, we have to give in to that, of course. But all of you will be given plenty of time before we finish up the hearing. I think we will have about as good an attendance as circumstances will permit. Everything is coming up at the same time, it seems.

And we have to cope with that the best way we can.

Senator D'Amato, we are glad you are here.

Senator D'AMATO. Well, Mr. Chairman——

Chairman STENNIS. Did you want to say a very brief word? And I emphasize, "brief." But if you want to say a word of introduction, well, you may proceed now.

[Laughter.]

Senator D'AMATO. It is good to see Secretary Aldridge here, Mr. Chairman, and the distinguished Admiral Hogg, as well as General Piotrowski.

PREPARED STATEMENT

Mr. Chairman, I have a statement that I would like to submit for the record as if read in its entirety, so that we can hear the Secretary. I will be chairing a meeting at 10, but I am certainly going to stay here until I have to leave for the other hearing.

[The prepared statement of Senator D'Amato follows:]

PREPARED STATEMENT OF HON. ALFONSE D'AMATO

U.S. SENATOR FROM NEW YORK

Mr. Chairman, I welcome to this committee Edward C. Aldridge the Secretary of the Air Force, General John Piotrowski, Commander-in-Chief of the U.S. Space Command and the North American Aerospace Defense Command, and Vice Admiral James Hogg, Director of Naval Warfare.

There has been much criticism about the expanded role of the military in our space program. According to the General Accounting Office, DOD estimates for space funding increase from $4.8 billion in fiscal year 1981 to $12.8 billion in fiscal year 1985. For fiscal year 1988, the administration has requested $17.2 billion for military space-related funding. This is an increase from $16.3 billion for this fiscal year. Funding will only increase in future years with programs such as the National Aerospace Plane project and the Strategic Defense Initiative.

There is particular concern that the military role will obviate the civilian role. DOD's funding of space programs grew from relatively equal spending levels with NASA in fiscal year 1981 to almost double NASA's funding levels in fiscal year 1985.

Although I believe that we must maintain a strong civilian space program, we cannot diminish the importance of military space programs nor can we ignore the role of the Soviet military in space. Our space systems enhance our national security by monitoring the Soviet Union's compliance with arms limitation treaties as well as providing vital early warning and communications systems.

The Soviet Union has a vigorous space program mostly dedicated to military purposes. It is estimated that the Soviets dedicate up to $25 billion annually to their space programs budget, a budget that grows at an average of 15 percent per year. The Soviets possess the largest space logistics base in the world. According to one source, the Soviets conducted 90 percent of all space activities in 1986. The Soviets have the only operational antisatellite interceptor system and, with the Soviet space station, they have a clear lead in manned space operations.

The Soviet Union's ambitious space program offers a challenge to the U.S. space program. Unfortunately, budget constraints will be the main obstacle to satisfactorily meet this Soviet challenge. In this period of uncertain budget figures for defense, it is crucial that we renew America's commitment to the space program. The United States has an obligation to the free world to continue an energetic civilian and military space program.

Thank you, Mr. Chairman.

INTRODUCTORY REMARKS

Chairman STENNIS. We would ask the reporter to put your statement and questions in the record, and would ask the witnesses to take notice and to see that the answers are supplied for the record at the proper time.

Senator D'AMATO. Thank you, Mr. Chairman.

Chairman STENNIS. You come back if you can.

Senator D'AMATO. I will stay for a while.

Chairman STENNIS. All right, gentlemen. I am glad to greet you here. You have prepared statements to make, I know, and we have questions for you to answer. I am going to be fairly brief, but I do want to say a few words by way of introduction.

I consider this a very important hearing. It is broad in its scope. It is an overall hearing, and it includes many new problems or items which deserve, and we must give them, a great deal of attention and study.

Our witnesses today about progress in our military space program will be Secretary of the Air Force, the Honorable Edward C. Aldridge, Jr.; Gen. John L. Piotrowski, Commander in Chief of the U.S. Space Command and the North American Air Space Defense [NORAD]; and Vice Adm. James R. Hogg, Director of Naval Warfare.

Secretary Aldridge is known as the senior Pentagon official with a fine overall grasp of the military space policies and programs, and he is here, as I understand it, as spokesman for the Defense Department, not just his own service but for the Defense Department. He will present a progress report on DOD's efforts to recover from the *Challenger* Shuttle tragedy, and will discuss the controversy regarding comparisons of space funding between DOD and the National Aeronautics and Space Administration.

General Piotrowski is the JCS Operational Commander responsible for space control and support, surveillance and warning, development of ballistic missile defense requirements, and support for NORAD. He is to discuss the military operational aspects of space, including U.S. reliance on space assets in combat and the United States-Soviet space balance.

Admiral Hogg is responsible for defining requirements for Navy weapons systems. The Navy has had major studies underway regarding its role in space, and the committee is interested in a report on these efforts and the other Navy-related space issues.

All right, Mr. Secretary. Welcome again. We have welcomed you here already for this hearing, as well as to thank you for last Tuesday's hearing.

INTRODUCTION OF SECRETARY ALDRIDGE

We need to understand the extent to which the U.S. Armed Forces rely on space operations for combat effectiveness and whether they are prepared adequately to deal with the Soviet space efforts. Also, the question of whether the Pentagon is eclipsing NASA's space program should be discussed more fully.

Even if DOD's comparisons yield a different picture from the one publicly perceived, the Pentagon's overall spending in this area gives it significant influence over our national space program. We need to be confident that DOD and NASA work with, and not against, each other on space matters.

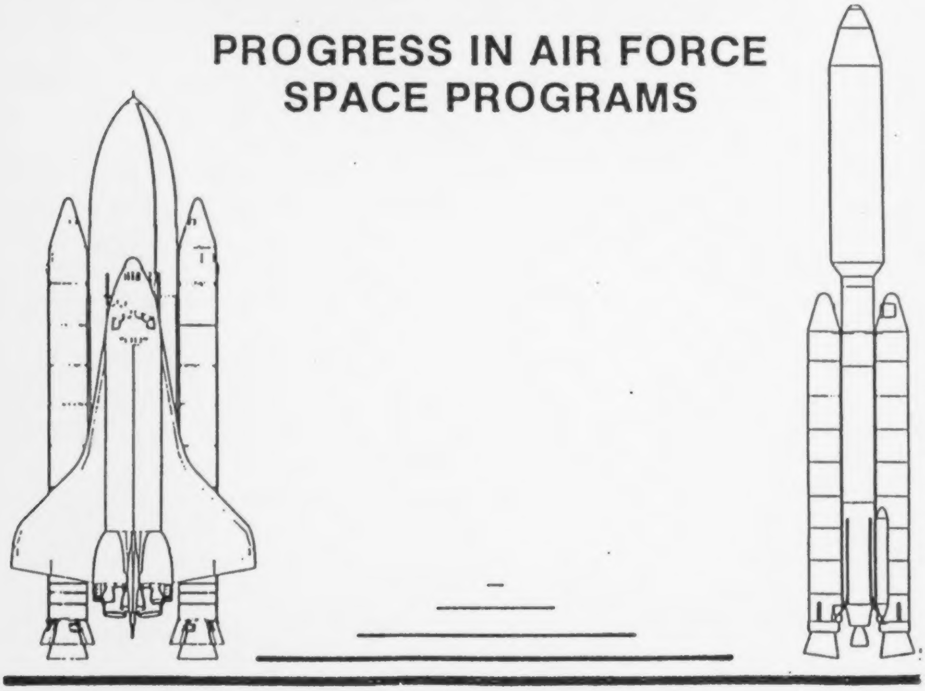
I am not suggesting they are inclined to work against each other, but I just point out here that it is a problem of all of us and all of you, and that every effort be made to avoid costly duplication by benefiting from each other's unique expertises.

We will hear from you, Mr. Secretary, on these and other matters. Secretary Aldridge, we would be glad to hear you now. And there is no time limit on your presentation. This is an important matter and it needs to be better known and understood.

Although we may have to interrupt, we want to hear you fully.

Mr. ALDRIDGE. Thank you, Mr. Chairman, I do have a formal statement that I would request be inserted for the record, and that I will summarize that statement in a series of charts that I think will better explain the issues that this committee has asked us to address; namely, how are we recovering from our space program in the launch area, and the comparison between the Department of Defense and NASA's spending. I also have a few charts which will describe where we stand in our Air Force military space program.

But we could shorten it up as we see fit as time goes on.



PROGRESS IN AIR FORCE SPACE PROGRAMS

PROGRESS IN SPACE PROGRAMS

Mr. Chairman, in typical Pentagon fashion I do have a couple of charts I would like to show you, and basically they show the progress that we have underway in our Air Force space programs. They also include all the Department of Defense military satellite areas.

OUTLINE

- **NATIONAL SPACE LAUNCH RECOVERY PROGRESS**
- **DOD AND NASA SPACE FUNDING**
- **AIR FORCE SPACE PROGRAM OVERVIEW**

PROGRAM OUTLINE

The outline of my presentation today includes the national space launch recovery efforts and our participation with NASA to recover from the series of accidents that have occurred in the past 1½ years or so. I will discuss DOD and NASA space funding, and I also have some charts on the Air Force Space Program Overview.

RECAP OF RECENT LAUNCH PROBLEMS

- TITAN 34D-7 FAILURE—AUGUST 1985
  - —CAUSE: STAGE 1 PROPELLANT FEED SYSTEM FAILURE
  - —LIQUID MOTOR PROBLEMS SOLVED: 11 FEB 87 WITH TITAN III/34B LAUNCH
- CHALLENGER ACCIDENT—JANUARY 1986
  - —CAUSE: SOLID ROCKET BOOSTER JOINT FAILURE
  - —NASA PLANS TO RESUME LAUNCHES FEB 88
- TITAN 34D-9 FAILURE—APRIL 1986
  - —CAUSE: SOLID ROCKET MOTOR CASE INSULATION DEBOND
  - —PAD REPAIR COMPLETE
  - —NONDESTRUCTIVE TESTS DEVELOPED: RESUME LAUNCHES IN 1987
- SHUTTLE CENTAUR TERMINATION
  - —CAUSE: SHUTTLE SAFETY CONCERNS
  - —AIR FORCE PURSUING DUAL-COMPATIBLE HIGH-ENERGY UPPER STAGE
- ATLAS/CENTAUR FAILURE—MARCH 1987
  - —CAUSE: LIGHTNING HIT SUSPECTED
  - —INVESTIGATION UNDERWAY
- IMPACT: 12 DOD PAYLOADS—8 MISSED LAUNCHES

SPACE PROGRESS RECAP

First, on our Space Launch Recovery Progress, let me just recap very briefly for you some of the problems that we have had over the past 1½ years or so.

As you know, back in August 1985 we had a major failure of a Titan 34D at Vandenberg Air Force Base. We know the cause of that particular failure. That was the first failure of a Titan rocket flying out of Vandenberg Air Force Base in 18 years of flying. Unfortunately, it occurred at a very inopportune time.

We have fixed that problem. In fact, we have launched a Titan 34B core vehicle just this past February, which confirms that the fix that we installed in that particular vehicle is in fact working. I think we have got that issue behind us.

"CHALLENGER" ACCIDENT

Unfortunately, right after the *Challenger* accident, we had another Titan 34D failure at Vandenberg AFB in April 1986, a failure which was a completely separate and distinct failure mode. It was a failure of the solid rocket motor booster. The cause was a debonding of the insulator from the steel case, which allowed the hot burning gases to get behind the insulation and essentially burn through the steel case, which caused the case to burst. The reason we know that is we recovered the parts of the solid rocket booster which fell onto the pad. Incidentally, the explosion destroyed the launch pad and an adjacent pad. I will discuss that in just a minute.

As a result of the *Challenger* accident and the safety concerns, NASA canceled the Shuttle Centaur program which we had planned to use for several of our Department of Defense missions. This resulted in us looking at alternatives for launching those payloads that needed the Centaur or a modification of the upper stage from Centaur into an inertial upper stage.

ATLAS CENTAUR FAILURE

And, of course, we all know about the Atlas Centaur failure just this last month. The suspected cause, of course, is lightning hits, and, of course, the investigation is still underway.

The result of all of these failures that have occurred since 1985, is that it has directly impacted to date, 12 DOD payloads, whch translates to 8 launches. These are operational launches, not research and development launches. This has caused us some concern.

As you know, there have been other events that do not directly affect the Department of Defense. There was a Delta failure last year, and to show that this does not affect just the United States, there was an Ariane failure that occurred last year as well. This has affected some of the commercial satellite business.

NATIONAL SECURITY OBJECTIVE AND STRATEGY

- OBJECTIVE
  - ENSURE A MORE CAPABLE LAUNCH POSTURE THAN BEFORE CHALLENGER FAILURE
- STRATEGY
  - NEAR AND MID-TERM: NO SINGLE NODES OR PATHS
    - LAUNCH VEHICLES
    - LAUNCH FACILITIES
  - FAR-TERM: THE ABOVE PLUS SIGNIFICANTLY LOWER COST

NEW LAUNCH POSTURE

Mr. Chairman, in putting together a program to respond to the series of events, we set up an objective and strategy for recovery. Our objective was that we wanted to recover from the series of events with a more capable launch posture than existed before the *Challenger* accident.

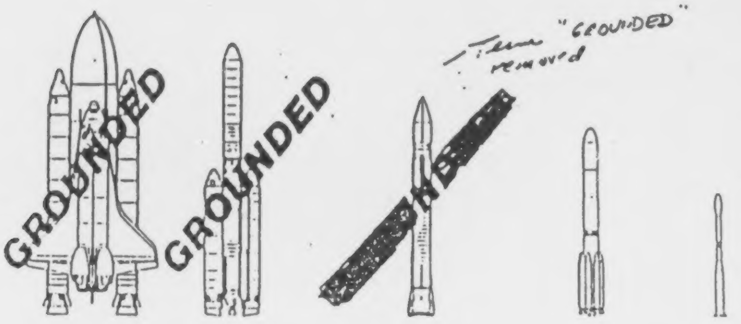
We wanted one which was more flexible, stronger, more robust than existed before the accident. Our strategy was to try and find access to space that did not rely upon any single nodes or paths. It would include a diverse set of launch vehicles and a diverse set of launch facilities, so that we were not dependent upon a single thread—a single way to get to space.

In the far term our objective was to be able to extend beyond the mid-term effects and look for lower cost ways to get to orbit. The direction that has been occurring in the past is that the launch costs are getting higher and higher. As a matter of fact it was getting to the point where the cost of the launcher was as much as the cost of the satellite, and that was certainly the wrong direction to go.

And so our long-term technology effort is to look toward lower costs to get to orbit that make our space program more affordable.

CURRENT LAUNCH VEHICLE ASSETS (U)

(AS OF 27 MARCH 1987)



Term "GROUNDED" removed

LAUNCH VEHICLE:		SPACE SHUTTLE	TITAN 34D	ATLAS	DELTA	SCOU
INVENTORY:		3	6	13	0*	10
PAYLOAD TO ORBIT (LEO)	KSC:	65,000 LB	32,900 LB	3,000-13,500 LB	7,600 LB	570 LB
	VAFB:	28,000 LB	27,600 LB	1,750-2,600 LB	5,500 LB	460 LB

*1 ADDITIONAL DELTA BEING ASSEMBLED FOR SDI MISSION

NEAR-TERM PROGRAMS

In the near term, we have the Shuttle, which is grounded for the time being. Up until yesterday we were looking for a February 1988 launch for the Shuttle, but unfortunately it looks like that is going to slip a little further.

And so our anticipated launch date that we are planning for is something around the summer of 1988. Of course this depends upon the fixes that are incurred and the testing that goes on in the Shuttle. We are, of course, dependent upon NASA for that activity. But we are planning to continue to use the Shuttle, and we need to begin flying that vehicle as soon as we possibly can, and we are waiting for NASA to provide us that capability.

The Titan 34B core vehicle, which is the center part of that vehicle, did launch successfully in February. And with the nondestructive testing work that we have had underway on the solid rockets, we began stacking a Titan 34D at Vandenberg on April 2. So we are anticipating that the next launch of a Titan 34D will be some time this summer from Vandenberg Air Force Base.

ATLAS MISSILE

We are planning a flight of an Atlas missile in May. We are watching intently the Atlas Centaur investigation that is underway. We do not anticipate that there will be any impact based upon the preliminary assessment that it was a lightning strike. That would not affect the basic technology and the reliability of the vehicle.

DELTA

We are also continuing to look at Delta. The SDI mission is looking at one Delta flight.

Finally, we have some 10 Scout vehicles around that are used for small payloads that we anticipate using for scientific investigation.

LAUNCH RECOVERY STATUS

ITEM	STATUS
• LAUNCH PADS	• REPAIRED AND READY TO GO —MODS FOR TITAN II AND IV FUNDED —REQUEST FOR ADDITIONAL TITAN IV PAD AT VAFB
• SHUTTLE	• PLANNING AROUND 2-YEAR DOWNTIME —PROTECTING AGAINST SHORT EXTENSION —LONG EXTENSION WILL BE COSTLY
• TITANS	• RETESTING IN PROGRESS —SUCCESSFUL TITAN IIIB —SOLID ROCKET MOTORS IN RETEST/REMANUFACTURE
• VANDENBERG SHUTTLE LAUNCH SITE	• PLACED IN MINIMUM FACILITY CARETAKER STATUS —AVAILABLE FOR REACTIVATION IN 1990s —NO DRIVING DOD REQUIREMENTS
• SPACECRAFT	• UNDERGOING TRANSITIONS

LAUNCH PAD RECOVERY

We have recovered our launch pads; the two that were destroyed at Vandenberg have been completed with great help from the Congress for funds for those programs approved. And, in fact, the pads are ready to go.

The modifications for converting the pads at Vandenberg for the Titan II ICBM and the Titan IV are fully funded, and we have made a request in the fiscal year 1989 budget request to build an additional Titan IV pad at Vandenberg. The future mission model of the Titan IV's for both DOD and NASA missions support the addition of another pad.

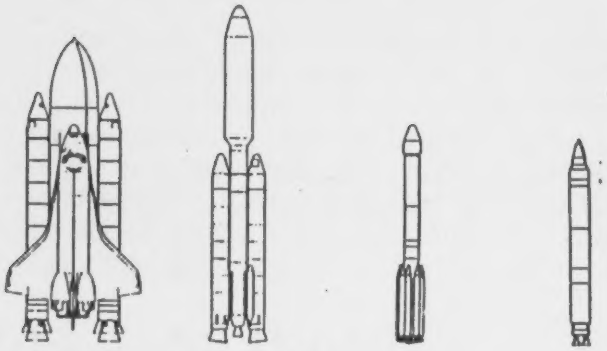
On the Shuttle, we have been planning for the 2-year down time, which would have been February 1988. We are protected against short extensions to the down time, but if the downtimes are longer than the anticipated launch in 1988, significantly more funds will be required for the Department of Defense to convert payloads from Shuttle launch onto other launchers. But we are anticipating that the Shuttle will be flying next year some time.

On the Titans, we have gone through our retesting program. As I mentioned, we did have a successful launch of a Titan 34B. The solid rocket motors are in retest and we are going to remanufacture some of them. Funding has been provided for that.

Since we have only three orbiters, we have had to place Vandenberg in a minimum caretaker status. It is our intent that we would take those three orbiters and fly them exclusively from the eastern test range, which would get the most efficiency out of them. We would than take those payloads that were required to fly from Vandenberg, the few flights per year, and convert them to be carried on expendable launchers. That will save us about $400 million a year in Vandenberg operations and maintenance costs until the fourth orbiter is delivered and new requirements for Vandenberg operation are in being. And we expected that would happen some time in the mid-1990's. Since Vandenberg is in a minimum facility caretaker mode, we could reactivate when those requirements are determined.

And, of course, we are carrying out modifications to our spacecraft to convert them to carriage on expendables or to make them dual-compatible so they could fly off an expendable booster or the Shuttle, depending upon the need.

RECOVERY LAUNCH VEHICLES



LAUNCH VEHICLE:		SPACE SHUTTLE	TITAN IV	DELTA II	TITAN II
PAYLOAD TO 100 NM:	KSC	TBD (51-58K LB)	39,100 LB	11,400 LB	5,200 LB
	VAFB	—	31,500 LB	—	4,200 LB
AVAILABILITY DATE:		1988 (1992 FOR 4TH ORBITER)	1988	1988	1988

MID-TERM

TITAN IV

Mr. Chairman, Congress authorized us 2 years ago to begin construction of what we then called the Complementary Expendable Launch Vehicle, which we now call the Titan IV. And we now have production underway for the Tital IV. Our overall plan for the Department of Defense is to use a combination of four different launch vehicles for our primary missions.

We will continue to rely on the Shuttle, running about four or five missions a year, hopefully with launch dates beginning next year.

On the Titan IV, we expect that it will be available for launching in the late 1988 timeframe and that it will launch a combination of payloads both from Vandenberg as well as from the Eastern Test Range at Cape Canaveral.

DELTA II PROGRAM

We have just approved a program which we call the Delta II which is a booster which will provide launch capability in the medium-lift range, and, in particular, the Global Positioning Satellite. That vehicle will be available in late 1988. Our plan is to buy 20 of those vehicles over the next 5 years. For the Titan IV, our plan is to buy 23 Titan IV vehicles over the next 5 years. Incidentally, in our Delta II competition we required the competitors to have a variant of the vehicle that could fly commercial satellites. The Delta II is certainly in that category. This is a booster which can compete with Ariane for many of the commercial satellite launches that could be provided by our own boosters in the United States.

TITAN II CONVERSION

Also, 2 years ago we approved the conversion of the old Titan II ICBM's. As they come out of the silos, we are converting those to space launch vehicles for launching small payloads such as our weather satellites from Vandenberg into polar orbit. We have 13 of those under contract for conversion at this point. But we have 43 vehicles remaining that could be converted for future Department of Defense or civil purposes. We expect to see that converted Titan II vehicle launch, as a matter of fact, within the next year from Vandenberg Air Force Base.

LAUNCH BASE STRATEGY

- KENNEDY AND CAPE CANAVERAL
  —2 SHUTTLE PADS
  —1 TITAN IV PAD (ILC 1988)
  —1 TITAN 34D PAD (THROUGH 1989)
  —2 DELTA II PADS (ILC 1988)
- VANDENBERG
  —1 SHUTTLE PAD (FACILITY CARETAKER STATUS)
  —2 TITAN IV PADS (ILC 1989/1993)
  —1 TITAN II PAD (ILC 1988)

LAUNCH PADS

On our launch base strategy at Kennedy Space Center and Cape Canaveral, we will have two Shuttle pads. To show the diversity of the launch pads we are looking for, we will have one Titan IV pad which will be capable of launching late next year. The funding is already approved for that, and that pad modification is underway and ahead of schedule.

We will have one Titan 34D pad through 1989. I have also been informed by Martin Marietta, since the Department of Defense has no further need for a Titan 34D, they are going to commercialize that vehicle. That launch pad would be available to Martin Marietta for commercial satellites. As a matter of fact, INTELSAT has signed up for two launches for the 34D, and we are encouraging that particular commercialization process.

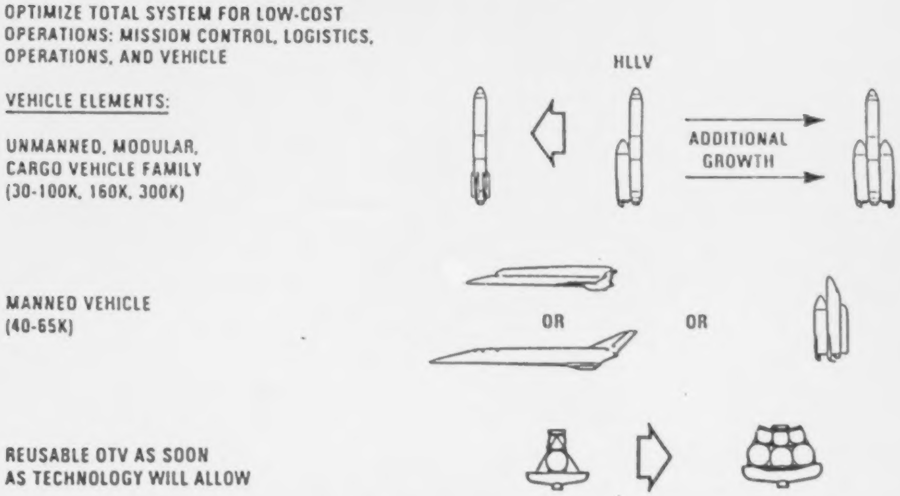
And there will be two Delta II pads at Cape Canaveral for our Delta II launches, and they will be available in 1988 for initial launch.

At Vandenberg, as I mentioned, we had one Shuttle pad, which we have now placed in caretaker status, awaiting future requirements. We will have one Titan IV pad in 1989 available for launch. And as I have mentioned, we have asked Congress in military construction funds for a second Titan IV pad, which would be available in 1993 with fiscal year 1989 funding.

And we will have one Titan II pad available, in fact, just a year from now, which is under modification now. We will also have the possibility of one more Delta pad at Vandenberg, which is SLC–2. It could be modified to launch Deltas from Vandenberg if required.

STAS DEVELOPED INSIGHTS

A GENERIC ARCHITECTURE


OPTIMIZE TOTAL SYSTEM FOR LOW-COST OPERATIONS: MISSION CONTROL, LOGISTICS, OPERATIONS, AND VEHICLE
VEHICLE ELEMENTS:
UNMANNED, MODULAR, CARGO VEHICLE FAMILY (30-100K, 160K, 300K)
HLLV
ADDITIONAL GROWTH
MANNED VEHICLE (40-65K)
OR
OR
REUSABLE OTV AS SOON AS TECHNOLOGY WILL ALLOW

FAR-TERM PROGRAMS

In the far term, we are going to continue with that mid-term program. However, as I mentioned, we are looking at a lower cost to orbit. We have two programs that we are looking at. One is a heavy-lift vehicle, which I am sure you have read about. We call that the Advanced Launch System, to reflect not only the booster but also the fact that we are looking for an advanced launch concept which would reduce the cargo cost to orbit, hopefully, by a factor of 10. We would benefit from any reduction in cost to orbit.

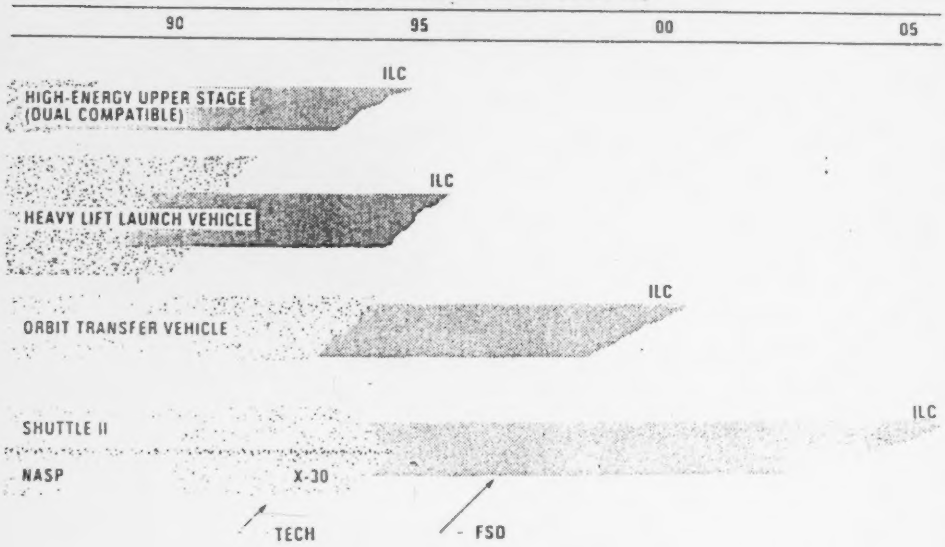
FUTURE MANNED VEHICLE

In addition, we are looking at a manned vehicle for the future. We have got two programs underway. One of them is the National Aerospace Plane, the so-called Orient Express. There is a joint program underway for that. And we are looking at other types of rocket boosters as a replacement for the Shuttle after the turn of the century.

We are also looking at an orbital transfer vehicle, a reusable orbital transfer vehicle, and we are looking for that as soon as technology will allow us.

Basically, Mr. Chairman, we are taking what we have, upgrading it for a strong launch posture, and we are looking for ways to reduce our costs to get to orbit.

SPACE TRANSPORTATION TECHNOLOGY/ SYSTEM DEVELOPMENT
(WITH SUPPLEMENTAL)



HIGH ENERGY UPPER STAGE

What this basically provides is a schedule that looks something like this. We are looking at a higher energy upper stage that would be the Centaur replacement, and a heavy-lift vehicle in the 1993–94 timeframe if the Congress approves the supplemental that has been presented for fiscal year 1987. If the supplemental is not approved, the earliest we could achieve a low-cost, heavy-lift vehicle would be in the late 1990's.

And as you see, the Orbit Transfer Vehicle would be available roughly the year 2000, and some type of manner system, a Shuttle II or a National Aerospace Plane, after the turn of the century as a replacement to the Shuttle.

LAUNCH RECOVERY CHALLENGES

- SHUTTLE
  - —STANDDOWN DURATION
  - —FUTURE FLIGHT RATE
  - —PERFORMANCE DEGRADATION
  - —RESCHEDULING PRIORITIES
- TITAN
  - —COMPLETION OF SOLID ROCKET MOTOR NDT
  - —RECOVERY FUNDING

NASA/DEFENSE SPACE FUNDING

Mr. Chairman, we still have concerns and challenges in our launch recovery, and some of our concerns, of course, concern the Shuttle. That is, how long will it, in fact, be down before it actually starts flying again. And we are seeing some slippages in that at this point. We are concerned about the future flight rate once it does begin to fly, and the problems of trying to accommodate Department of Defense and civil payloads in some kind of priority on that flight rate.

We are very concerned over the performance degradations that are occurring as a result of safety and design improvements. As a matter of fact, we have had to move some Department of Defense payloads off the Shuttle because Shuttle performance is not adequate at this point.

But the other payloads will remain on board. And, of course, as I mentioned, the question with the stand down and flight rates is: What impact will they have on priorities of scheduling our DOD payloads. We still have some concerns over Titan, making sure our nondestructive testing effort on Titan is complete. And we have fully provided the recovery funding to make those boosters adequate for the future.

DOD AND NASA SPACE FUNDING

Mr. Chairman, now I would like to very briefly turn to the second issue you asked us to address, and that is the relationship between the Department of Defense and NASA space funding. And I would like to show you the first chart, which is the chart that has been shown in the public press, and the basis for the so-called controversy over the amount of funding going to the Department of Defense versus NASA.

[CLERK'S NOTE: Vugraph 12 is retained in the subcommittee files.]

DOD did surpass NASA in space funding in 1981. DOD funding is continuing to grow. I think this is indicative of the view that the Department of Defense has about the military value of space in support of military operations, and the essential force multiplier that space provides our military commanders to meet their combat needs.

But Mr.Chairman, I think it is appropriate that we put these funding charts in context. For example, if you look at the Department of Defense funding, about 70 percent of those funds are in the Air Force budget, which I can address. The great percentage of the remaining part of that is SDI, although there are some other funds in the Army and the Navy. But the great percentage of that is SDI funding, which is a new mission for the Department of Defense that has not been previously incorporated in the space activity.

[CLERK'S NOTE: Vugraph 13 is retained in the subcommittee files.]

If you look at those activities in the Department of Defense and the Air Force that are related to NASA-type funding—that is, research and development, launch, ground operations, and so forth, and take out of the Air Force budget those programs which are operational in nature, which are not things that NASA has—such as our navigation satellites, our early warning satellites, communication, weather, and general support of the various spacecraft in terms of mission control centers and operational type centers—then you get a cost to the Air Force that is shown on that bottom line. That is the cost which is more indicative of the types of programs that exist in the Air Force similar to those which exist in NASA.

[CLERK'S NOTE: Vugraphs 14 and 15 are retained in the subcommittee files.]

Now, if you compare the two charts, you see that in relative terms, the apples-to-apples comparison between the Air Force budget—and, of course, if you add the rest of the DOD budget it does not change that much—is that NASA, in fact, surpasses in similar kinds of missions the funding that would be associated with the Department of Defense.

Mr. Chairman, I guess what I am saying is that the reason for the disparity in the costs is primarily those missions that are operational in nature by the Department of Defense. These are not similar to the kind of activities within NASA.

Once you take those programs out of the comparison, then the NASA space budget for research, development, and launch operations, in fact, exceeds that of the Department of Defense by a significant margin.

Mr. Chairman, I have just a few more charts left, and I will go through these very rapidly to give you a sense within the Air Force of where we stand in our very important programs.

[CLERK'S NOTE: Vugraph 16 is retained in the subcommittee files.]

WEATHER SATELLITE

First of all, our Defense Meteorological Satellite Program, our weather satellite. We have asked to start a new multiyear program for the DMSP, and we anticipate about a $90 million savings across our 5-year plan on that.

Our Defense Support Program. Our [deleted] continues its multiyear procurement, and we have achieved $329 million in savings in that particular program.

On our Navstar GPS, we were funding the last four multiyear satellites and we are continuing the user equipment production, and now we are planning to fly the GPS's on the Delta II and the Shuttle in a combination of launch vehicles.

[CLERK'S NOTE: Vugraph 17 is retained in the subcommittee files.]

On Milstar, one of our more important survivable satellites for the future, we continue in a development mode to get a good capability in the early 1990's for that particular system. That will significantly improve our survivable command and control system.

On the Defense Satellite Communications System, our very important wide-band—that means high data rate communications system—we fully fund the last year procurement satellite in fiscal year 1988.

[CLERK'S NOTE: Vugraph 18 is retained in the subcommittee files.]

CONSOLIDATED SPACE OPERATIONS CENTER

On the Consolidated Space Operations Center at Colorado Springs that General Piotrowski obviously is very close to, we continue to phase that in, although, as you know, we did cancel the Shuttle Operations and Planning Complex at that particular facility. But we continue to bring the CSOC facility on board, and it is doing quite well.

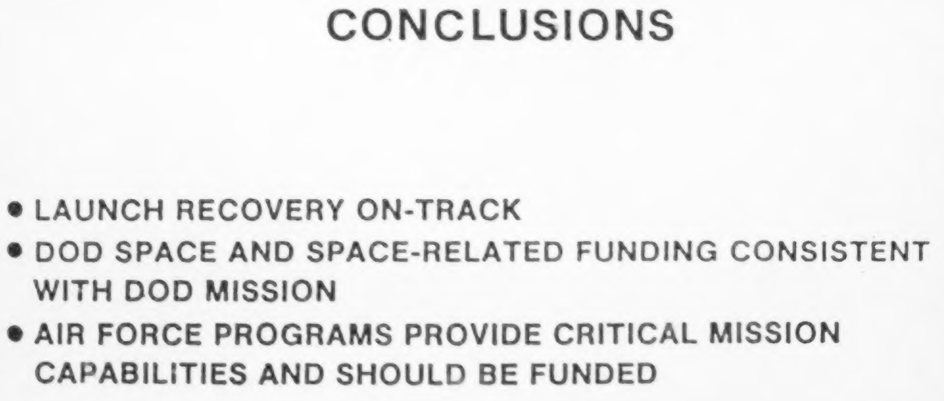
On ASAT, our space defense system, we are requesting the long lead procurement for the first three production ASAT vehicles in fiscal year 1988, although there is no production of the actual vehicles until 1989. This is the long lead for the production. We are again requesting Congress to remove the testing restraints on the ASAT program so we can provide a capability that offsets the imbalance that exists between ourselves and the Soviet Union in that area.

[CLERK'S NOTE: Vugraph 19 is retained in the subcommittee files.]

SPACE BOOSTERS

Again, on Space Boosters we are continuing the Titan IV multiyear procurement; we are starting the Delta II procurement for our medium-lift vehicle. The other vehicles are fully funded in our program.

The Space Shuttle Operations includes the funds for the DOD Space Shuttle flights and also an upper stage for our Defense Support Program satellite.



CONCLUSIONS

- LAUNCH RECOVERY ON-TRACK
- DOD SPACE AND SPACE-RELATED FUNDING CONSISTENT WITH DOD MISSION
- AIR FORCE PROGRAMS PROVIDE CRITICAL MISSION CAPABILITIES AND SHOULD BE FUNDED

In conclusion, Mr. Chairman, let me just say that I believe our launch recovery program is on track. We have had significant support from the Congress to get those programs fully funded.

We do have some remaining concerns, however. We are looking at dealing with the performance of the Shuttle and the down time in flight rate to make sure that we maintain this strong recovery program.

I believe that DOD space-related funding is consistent with the DOD mission and is not inconsistent with our overall national priorities. And I believe that the Air Force programs provide a significant support to our military operations. We believe they ought to be fully funded within the resources available to our country.

Mr. Chairman, that ends my particular presentation, and I would proceed any way you like. I would suggest, perhaps, we hear from General Piotrowski's statement and then Admiral Hogg's, and then maybe we could open it up for questions, if that is OK with you. However you would like to proceed.

[The prepared statement of Mr. Aldridge follows:]

PREPARED STATEMENT OF HON. EDWARD C. ALDRIDGE

SECRETARY OF THE AIR FORCE

MR CHAIRMAN AND MEMBERS OF THE COMMITTEE:

I welcome the opportunity to address you today on progress in our Air Force Space Programs--and I believe we do have considerable progress to report. I'll group my remarks into two major topic areas. First, in order to put our space programs in perspective, I will discuss our on-going Space Launch Recovery effort. Then I would like to address trends in what we call the Air Force Space Budget--and hopefully set the record straight on recent assertions regarding the growth of our programs with respect to those of NASA.

Slightly over one year ago, the loss of the Space Shuttle Challenger shocked the Nation and dealt the US space program an unprecedented setback. The grounding of the Shuttle fleet severely impeded access to space for our country's military, scientific, and commercial payloads. Further compounding the problem for the military were the two Titan III failures resulting in the standdown of this launch system since April 1986.

This series of accidents created a national crisis, requiring development of a national space launch strategy that does not rely on any single launch system. Since the tragedy, the Department of Defense, the National Aeronautics and Space Administration, other government agencies, as well as the civil and commercial communities have worked intensively together to develop a plan of action that will not only recover our launch capability but place it in a far stronger position to assure our continued access to space in the future.

Our recovery strategy, now well underway, centers on the development of a mixed fleet of launch vehicles, and is based on several key guidelines. First, DoD will maintain its commitment to the Space Shuttle program. When the Space Transportation System (STS) again becomes operational in early 1988, it will remain a key element of our launch fleet for several critical missions. Second, some missions have been off-loaded from the Shuttle and moved to Expendable Launch Vehicles (ELVs). Should Shuttle recovery be delayed, other DoD missions would be off-loaded to eliminate additional schedule demands on NASA. To further promote assured access to space, dual-coast launch facilities will be developed and maintained. Finally, selected military missions will have satellite dual-compatibility--that is to say, these satellites could be put into space by either the Space Shuttle or ELVs.

Clearly, this recovery approach demands the acquisition of additional ELVs, as well as development and maintenance of a continuing industrial base for launch vehicle production and launch services. However, due to the long lead-time required to produce new assets, no additional launch capability can be provided in the near-term. Therefore, the United States must continue to prioritize its existing assets--efficiently employing them to satisfy national security needs. In the future, we will complement these existing assets with several fleets of new ELVs. The first of these is the Titan IV boosters, which will remove the most stressing missions from the Shuttle system. Additionally, the Delta II launch system will relieve further demands on the Shuttle by deploying most of the Navstar Global Positioning System satellites. Air Force plans also call for modification of existing Titan II inter-continental ballistic missiles for launch of small payloads such as the Defense Meteorological Satellite Program satellites. These ELVs represent the majority of the Nation's current and planned inventory and they are already dedicated to specific payloads which cannot be readily rescheduled. Since the Shuttle accident, near-term payload scheduling has remained a dynamic process with national security needs having a great influence on manifesting decisions.

The recovery strategy emphasizes the acquisition of additional assets to close the gap between launch requirements and capabilities. Congress provided us with supplemental funding in the FY 1986 and FY 1987 budgets for additional Titan IVs and the Medium Launch Vehicle, and a contract for the Delta II booster was awarded in January 1987. By selecting the Delta II, the Air Force is also encouraging the commercial space launch industry: one of the competition groundrules was that commercial variants be considered. A healthy commercial space industry makes space more accessible and affordable to all the Nation's needs--military, civil and commercial.

We have also taken several steps to ensure that our launch bases are just as robust and flexible. Pad modifications are currently underway at Cape Canaveral AFS, Florida for the Titan IV. Plans are currently under development for the Titan IV pad modifications at Vandenberg; they are scheduled to be implemented after the last Titan III launch. In addition, we have requested funds for a new Titan IV pad to be built at Vandenberg AFB. Finally, we will use the existing pads at Cape Canaveral AFS for Delta II launches. Should Delta II polar mission requirements develop, we have an option to convert an existing Delta launch pad at Vandenberg AFB. The Vandenberg Shuttle pad is being maintained in a minimum facility caretaker status pending the demonstration of Shuttle recovery capability.

While acquisition of additional launch vehicles and launch facilities greatly aids space launch recovery in the near-to-mid-term, we must also look to the future. Even with the mix of expendable and reuseable launch vehicles, it is still expensive to get payloads into orbit. The Nation needs a way to make access to space much more affordable. This is particularly true since the NASA Space Station and possible SDI deployment scenarios would drive launch requirements considerably higher than current launch schedules. As a result, we will need even more cost-effective and more capable launch systems. DoD and NASA look to the Heavy Lift Launch Vehicle, recently renamed the Advanced Launch System or ALS, to meet these objectives.

Alternatives for the ALS are currently being analyzed in the joint NASA/DoD Space Transportation Architecture Study (STAS). The STAS contractors have been analyzing all aspects of space launch, including requirements, vehicles, operations (such as ground operations and payload processing), logistics and manufacturing processes. Technological advances will clearly be needed in areas such as propulsion, lightweight structures, automated operations, and advanced avionics. Incorporating these advances into innovative system concepts should enable the US to achieve a significantly more cost-effective and more capable space launch program for the post-1995 timeframe, and possibly sooner. As the Congress is aware, the Strategic Defense Initiative Organization has requested supplemental funding to accelerate the Advanced Launch System. We have begun to investigate alternatives for these new, more capable and cost-effective systems to assure that our needs are met in the future.

Finally, we have reached tentative agreement on the pricing policy for future Shuttle missions flown by NASA for DoD, and ELV missions flown by DoD for NASA. While many details remain to be worked out, we have agreed that each party will pay for the hardware cost of the launch vehicle to be used; that launch services will be provided on a quid-pro-quo basis by the agency performing the launch (except for ELVs not in DoD production). Presently, based on prior reimbursements by DoD to NASA, NASA owes DoD nine Shuttle flights.

The loss of the Challenger and the prolonged grounding of the Titan III painfully underscored our Nation's need for a robust, balanced fleet of launch vehicles and facilities to assure our access to space. The National recovery plan I outlined above will provide the additional assets--and planning for the future--to ensure the Nation will never again be faced with the situation we have been faced with for the past year. It is the first step toward restoring America's leadership in space.

With our national plan for assured access to space in perspective, I would now like to briefly discuss Department of Defense and Air Force space program funding. I have also been asked to compare the DoD and NASA Space budgets, and in doing so I would like to clear up a few misconceptions that have recently surfaced.

Let me begin by describing what is meant by the term "Space Budget." Each year we gather budgetary data on approximately 80 Air Force space or space-related programs. This data is grouped under eight reporting categories, and the aggregate is commonly referred to as the "Air Force Space Budget". The categories are: Navigation, Communication, Tactical Warning/Attack Assessment (TW/AA), Weather, Launch, Ground Systems, Research and Development, and General Support. For the Air Force, the Navigation category consists entirely of the Navstar Global Positioning System (GPS) program--satellites, control segment and user equipment terminals. The Communications category is comprised of such programs as the Defense Communications Satellite System, AFSATCOM, FLTSATCOM, Milstar, and even aircraft modification programs involving satellite communications capabilities. The TW/AA category contains programs such as the Ballistic Missile Early Warning System (BMEWS), since it is time-shared to track space objects, and other programs that provide warning of ballistic missile attack. The Weather category reflects the Defense Meteorological Satellite Program (DMSP). In the Launch category we reflect our Space Shuttle operations and Space Boosters programs such as Titan IV and Delta II. The Ground System category is comprised of our operations centers such as the Consolidated Space Operations Center (CSOC) and the Satellite Control Facility (SCF); our east and west coast launch facilities; and funding for operation of the Air Force Space Command. The Research and Development category contains our space-related Science and Technology, or S&T, programs in areas such as propulsion, biotechnology, etc. The last category, General Support, covers a wide range of space-related support activities, including development planning activities, professional military education, and intelligence-related functions. Once our funding data are allocated into these categories, we provide this information to the Office of the Secretary of Defense (OSD), which consolidates similar submissions from all the Services into the "DoD Space Budget." In FY 1988, the DoD space and space-related funding is about $17.2 billion, of which approximately $11.9 billion or 70% is Air Force funding. It has recently been noted in the Congress and in the press that DoD space funding surpassed NASA space funding in FY 1982, and continues to exceed NASA space funding through the current five year plan. This is correct, but the comparison alone can be quite misleading. Allow me to make a few observations that will provide both a clearer picture of the "Space Budget" and a better means for comparing than the "bottom line."

Because the Air Force's space and space-related funding reflects about 70% of the DoD total, I will focus on it. As I mentioned, the programs included in the analysis range from systems such as the Defense Meteorological Satellite Program, which is clearly 100% space-related; to the Ballistic Missile Early Warning System (BMEWS), which is used only part-time to track objects in space; and even to ground and airborne terminals that do nothing more than communicate via dedicated satellite systems. Many of these programs satisfy crucial operational requirements and play a continuing day-to-day role in our national defense mission. Clearly, the Air Force and DoD have a unique requirement and ground-based systems that provide capabilities vitally important to our Nation's security. NASA has no comparable programs.

What, then, would provide the basis for a meaningful comparison? Of the eight categories set forth above, only the catagories of Launch, Ground Systems, R&D, and related elements from the General Support line are directly comparable. The remaining categories--Navigation, Communications, Tactical Warning/Attack Assessment, Weather and the remainder of the General Support line--are unique to the DoD mission and should be excluded from any comparison.

With this in mind, the portion of the Air Force's space and space-related budget comparable to NASA's amounts to about $3.6 billion in FY 1988. The FY 1988 NASA budget is about $9.4 billion. Although we do not have an exact breakout of the space-unique portion of the NASA budget, historically it runs about 90% of the total--or about $8.5 billion in FY 1988.

Thus, it is clear that when we compare "apples to apples," the DoD, Air Force and NASA space budgets are not out of line. The Air Force and DoD in general have a sizable investment in space and space-related programs...but this investment is not disproportionate when put in the context of the increasing reliance we must place on the critical space systems we need to accomplish our assigned missions.

Mr Chairman, I hope I have shed some light on where the Air Force is heading in space, and the level of resources we'll need to get there. This concludes my remarks.

HEARING PROCEDURE

Chairman STENNIS. Gentlemen of the committee, you have just heard what the Secretary has said. We have this important testimony from very good witnesses indeed. At the same time, my understanding is that there is a session going on at the Capitol with Secretary Shultz, and that may account for the absence of some of our members.

The point I make now is how can we best cover this material and use the time most profitably? I do not want to put any time limitation on any of the witnesses. I believe if we could proceed here briefly or fairly briefly, with no limitation on the membership, and see what questions the members may wish to ask the Secretary here, and then we could go on to the next point.

And when our absent members return, why we would give them a change to ask questions, too. So if that is agreeable, we would be able to get to more members that way, and we would proceed on that basis.

HEAVY-LIFT LAUNCH VEHICLE

And I have some questions that I will present and then move on. Now, the Defense Department, as I understand, says that between fiscal year 1987 and fiscal year 1992 it plans to spend $3.7 billion on research and development on the heavy-lift launch vehicle, and that between fiscal year 1989 and fiscal year 1992 this program is underfunded by about $3.5 billion below the required spending.

The Pentagon also informs me that the total DOD costs just to develop a heavy-lift launch vehicle are estimated to be $17 billion. Now, considering the extremely tight defense budget, Mr. Secretary, and the budget outlook, too, in the next few years, and all of the matters of high priority relative to military spending needs—the Stealth bomber, the advanced tactical fighter, the F–15, C–17, and all closely—and MX—all closely allied to a degree, would you agree now, Mr. Secretary, that the Air Force and NASA should be cooperative to a high extent in this program that I have outlined to avoid costly duplicative efforts?

I wish you would comment on that. I know what your answer would be, but I would like to see it go in the record.

Mr. ALDRIDGE. Yes, sir. I have stated on several occasions that the heavy-lift vehicle program, which incidentally, Mr. Chairman, we now call the Advanced Launch System—the reason for calling it Advanced Launch System is it is not just a vehicle we are looking for. We are looking for lower cost space operations, which means new approaches to reducing the launch-based cost, as well as the cost of the vehicle that we put into orbit. And so we call it an advanced system, an advanced launch system, rather than a heavy-lift vehicle because that is only a booster and we are looking for a broader approach to reducing the cost. I have said it should be a national program. We should use the expertise that exists across the country to produce such a vehicle, both for military as well as civilian needs. The requirements are dominated in the near term by the questions of space station and SDI. But over the longer term and through the 1990's, late 1990's, it will be required for

Department of Defense as well as other NASA missions, such as the potential for a Mars probe or some other kind of heavy-lift or heavy payload requirements. It should be a national program. We should use the expertise that exists in the country to support it. Mr. Chairman, my only concern over that is some one person has to be in charge, and I would propose that, because of the nature of the requirements, that I think the Air Force ought to be in charge of developing the heavy lifter, using NASA expertise across the country.

As a matter of fact, there is a good model for that organizational arrangement. It is one we have provided for the national aerospace plane, in which the Air Force, the Department of Defense, and the Defense Advanced Research Projects Agency are very heavily integrated into a joint program. It is run out of Wright Patterson Air Force Base. An Air Force brigadier general is the program manager, but NASA is heavily participating in it and is throughout the management of the organization. The organization can, in fact, use the technologies and expertise that exist across the country in NASA centers. And the Air Force can do the same with its various laboratories around the country. It is working extremely well, and that is a good model, I think, we could follow for the development of the advanced launch system for the country.

Chairman STENNIS. All right. I have one more question and then I will yield. Now, you referred to the advanced launch system or heavy-lift launch vehicle in your statement, and you indicated that DOD and NASA are studying alternative concepts and designs for this major new program.

REQUIREMENTS FOR ADVANCED LAUNCH SYSTEM

Does any military requirement validated by the Joint Chiefs of Staff exist for a heavy-lift launch vehicle in the 1993–94 time period?

Mr. ALDRIDGE. The program that would call for a heavy-lift vehicle, advanced launch system, in that timeframe would be the Strategic Defense Initiative. That is the primary one for the Department of Defense. The primary mission for the National Aeronautics and Space Administration would be the initial assembly of the space station roughly in that same timeframe. Beyond that, the next requirement comes into the 1997–98 timeframe, with heavier Department of Defense payloads and some other missions that are being considered by NASA, such as a Mars launch.

MILITARY REQUIREMENT FOR SYSTEM

Chairman STENNIS. All right. To be sure that it is understood now, when, by what period, would you estimate the first firm military requirement for such a system? When would that occur?

Mr. ALDRIDGE. If the decision by the President is to begin deployment of an SDI for military deployment, that would be in the 1993, 1994, 1995 timeframe, depending upon when that decision is made. That would be the first firm requirement for a vehicle that is larger in payload capacity than we currently have through the Shuttle or through the Titan IV.

Chairman STENNIS. Well, putting all this together in one place shows what a difficulty you are up against and that we are up against and the President is up against, and anyone that has to deal with the hardware or the money.

Mr. ALDRIDGE. Yes, sir.

Chairman STENNIS. There is a limit on how much we can spend.

Mr. ALDRIDGE. Mr. Chairman, I think if I could make a comment here, that we need a heavy-lift launch vehicle. And, of course, the question is the timing of the particular vehicle we are looking for. But we will, in any event, have to buy launchers for our military satellites. Our really ultimate objective is not only to get heavier lift capacity than we currently have through the Shuttle and Titan IV, but our intent with this new development is to significantly reduce the cost of putting satellites in orbit below what we are currently spending for launching these satellites. So our objective in the new vehicle is not only to get the heavier lift capability, but to get the cost down. In fact, we have established a goal of a factor of 10, to get the cost of launch down by a factor of 10, so that we can put our money where it ought to belong—into the technology of satellites, the payloads into orbit—as opposed to spending so much money on the booster, the truck that gets them into orbit.

And so our objective is really twofold with this advanced launch system, not only heavy lift but also lower cost. We can achieve both of those simultaneously so that the satellites that we currently have and will evolve also can benefit from this lower cost to orbit. So we have two objectives, and I think we need to keep focusing on the fact that we need to get on with this new technology independent of whether it is called heavy lift or not. It is also the lower cost objective that we have in mind.

[Whereupon, the classified session ended.]

(OPEN SESSION)

MILITARY SPACE PROGRAMS

[Whereupon, the hearing proceeded in open session.]

PROPULSION TECHNOLOGY PROGRAMS

Chairman STENNIS. I am going to yield after this question, gentlemen.

Now, in light of the fact, Mr. Secretary, that NASA has developed and manned recent heavy lift launch vehicles, such as the reusable space Shuttle, the expendable Saturn V and Saturn 1–B, the Titans, vehicles with the payoff capabilities within the range and even beyond what you have been discussing, how do you propose to fully utilize the ongoing propulsion technology programs at NASA?

What do you propose to do about that?

Mr. ALDRIDGE. Just as of Tuesday or yesterday, we issued a research and development announcement. This was a joint announcement coordinated between ourselves and NASA. We asked contractors to come with design concepts for the Advanced Launch System that will, in fact, achieve these lower cost goals that we have established.

We have not prejudged the technical solution for what those concepts may look like or how they may evolve with time. We could go through a series of steps. Once the design concepts are in, then we can determine what the engine technologies are, the booster technologies, and the avionics technologies that would be applicable for that particular vehicle.

Then, once we can get our design concept laid out and our management approach laid out, we can tap into the various expertise around the country for those various kinds of programs. Once we have the concept, then we can determine how we are going to use the expertise; but it is hard for me to say how I am going to use solid rocket technology at this point when in fact solid rockets may not be part of the concept which is derived from this series of studies. Once we get the concept down, then I can determine how we will use the expertise, that would probably be within a year.

Chairman STENNIS. All right. Well, we will not press that right now, but we will have to go further with this. You are going to be giving it your attention, I know.

Mr. ALDRIDGE. Yes, sir. That is at the top of my priority list.

Chairman STENNIS. All right. My time is up, gentlemen.

Senator Cochran, I would call on you next.

Senator COCHRAN. Thank you, Mr. Chairman. Thank you very much.

BUDGET REQUEST STRUCTURE

Secretary Aldridge, I was curious to know how you go about formulating a budget request in light of the fact that so many agencies are involved or affected by this new technology that we are talking about, the heavy lift capability.

Obviously, NASA and the Air Force are affected but also the Navy and Army to some extent. The SDI Program also have a major stake in this.

What kind of coordination occurs among those who are affected for determining how the budget request is structured? I know that there is a supplemental request that is going to be before the committee.

Mr. ALDRIDGE. We had an interagency study called the Space Transportation Architecture Study, of which we developed a series of technologies heading toward this lower cost activity, a joint activity between ourselves, DoD and NASA. We in the Air Force, of course, are the executive agent for launching, so we represent all of the Department of Defense users. We monitor the requests of the various departments as to what they need for the future. In fact, we went out in this particular study and asked all the users, not only the Department of Defense but also NASA users and other agencies such as NOAA, what their future requirements were for launching satellites. We did not restrict them, whether they were light payloads or heavy payloads or whatever.

We got those requirements back and scrubbed them and have now determined their mission model. Their mission models are dependent upon the type of scenario. Do you believe the space budget is going to go up, or do you think it is going to stay level, or is there going to be a retrenchment? We looked at various alternatives of that and defined the variations in mission models and then determined what were the best architectures to carry out the launching of those missions under each of the scenarios to see if there were common elements. There were common elements.

It was clear that there were two basic conclusions. One was that in the future all users, DoD as well as civilian, there will be a need for an unmanned heavy lift cargo-like vehicle, unmanned, that could place lots of payload in orbit at varying degrees of cost. There was also a need for a follow-on to the Shuttle, which we called the Shuttle II or National Aerospace Plane, but that is not the issue here.

In the requirement for the heavy lifter, we then identified the technologies necessary to carry that program out. We did this to give us the information for a future decision as to the concept that would give us the cost-reduction factor.

What we have done based upon the SDI mission is that SDI and the Department of Defense would be the driver for the requirements early in time. Therefore, the supplemental requested before Congress is in the SDI account. They are the ones that should pay for the acceleration of that technology.

If it had not been for that, our share would be carried through the Department of Defense, and there would be some share that we would anticipate within NASA. It is a common mission model.

SDI REQUEST

Senator COCHRAN. Some here in the Congress have embarked upon a mission to undermine the request for SDI and are attacking it for various and sundry reasons. What concerns me, therefore, is that if this is a very important new program and it has impact throughout the Department of Defense, why put all the budget eggs in one basket? The SDI budget is under a great deal of pressure and criticism and is spotlighted by some who have embarked upon, I think, a goal of killing it.

I do not know if they will succeed, but I hope they do not. If, however, they succeed or if they just halfway succeed, does that cripple this program?

Mr. ALDRIDGE. The budget numbers that I have seen for SDI and the reductions to $3.5 billion would in fact slow the program down significantly to an almost crippling effect.

Of course, as you know, the Air Force is not the manager of SDI. We implement part of the program for SDI through General Abrahamson and through Secretary Weinberger. The rationale for including the funds in the SDI supplemental was that SDI was in fact the user of this heavy lift vehicle earliest in time. We typically put the cost of the program in the user budget. It was a logical thing for us at the time. Maybe from a point of protecting SDI it was not, but that is how it got into that program. If it had not been for SDI—other requirements were a little later in time, and the technology program could be slowed. It could be less than what would be requested in the 1987 budget supplemental.

ADVANCED LAUNCH CAPABILITY

Senator COCHRAN. I noticed your comments about the advanced launch capability and, in fact, that while the Air Force is the executive agent, there will be an effort to continue to use NASA expertise which exists across the country.

Mr. ALDRIDGE. Absolutely. There is no doubt in my mind about that.

Senator COCHRAN. I am concerned about that, because one comment which I have heard, and I do not know if there is any basis for it, is that the Air Force might try to construct new facilities such as testing facilities that would duplicate existing facilities. For example, there is a NASA test facility which just happens to be in my State, and the Chairman's State, in Hancock County, where engines are tested. If we approve what you are doing here, you are not going to take some of the money and build a new test facility in California, are you?

Mr. ALDRIDGE. We have no incentive to do that. Why should we take money from an Air Force budget when there is an existing facility? That takes money from other programs. In the Air Force, there is no incentive for us to do that.

Senator COCHRAN. As far as you know, the facility there could be used for testing of this program.

Mr. ALDRIDGE. As far as I know. The only caveat I would put on that is that we have to look at what the concept is that comes out of these particular studies, joint studies, because they are, in fact, joint. The announcement that we put out was approved and coordinated with Dale Myers, myself and General Abrahamson, and so we are all in complete agreement with what has been asked for. Once we see the concepts that are derived, then we can define where the expertise is in this country to carry that out. There is no intent to duplicate. There is no incentive whatsoever. I could not come over here and justify before the committees a duplication, building a new facility when one exists somewhere else. We have no intent to do that.

Senator COCHRAN. Thank you, Mr. Chairman.

Chairman STENNIS. Thank you, sir.

Senator Proxmire.

Senator PROXMIRE. Thank you, Mr. Chairman.

EXPENDABLE BOOSTERS

Ten years ago, Secretary Aldridge, I called a special hearing as Chairman of the HUD Independent Agencies Subcommittee of this committee which has jurisdiction over NASA. The issue was the use of expendable boosters versus the Shuttle. I argued that for national security reasons we needed expendable boosters. I also argued the expendables were cheaper and more reliable. Now, the DOD testified that they were entirely satisfied with the Shuttle and that no expendables beyond the current inventory were needed.

In retrospect, the Shuttle schedule for launch turnaround was far too optimistic. Its reliability was low, its cost high. Do you not think, Mr. Secretary, that if the Pentagon had been more forthcoming with its own reservations 10 years ago that we would be in a better situation today with regard to expendable boosters?

Mr. ALDRIDGE. Yes, sir. We made a tragic error. The program at the time, however, was based upon a series of launches, a launch rate prediction of 55 flights a year, a cost to launch of one-third the cost of an expendable launcher, a turnaround of 7 days, five orbiters, all of which were equally capable of launching anything that the Department of Defense could fly.

Based upon that, under those optimistic assumptions at the time, the Department of Defense felt, as I understand it, that if you could, in fact, get the cost of the launcher down by one-third the cost of an expendable, then we could offset some of the concerns by putting more of the money into the satellite programs to give the satellites more robustness in orbit. You could think about orbit sparing. You could think about more satellites on orbit so that if you ran into any problems with regard to the launch, you had some robustness and space in the satellite area. So we could see the money shifting from the launcher to the satellite area, which is what we wanted to do, and then with the costs numbers that were predicted, that was not unreasonable. It would not make people very happy, but at least it was a possibility.

Unfortunately, none of those events occurred. As you know, I have testified before, I thought that back in 1978 when we made the Shuttle decision the country made a tragic error.

Senator **PROXMIRE.** Well, I appreciate that very much, and I appreciate your agreeing that it was a mistake.

SDI

I want to follow up on the questions asked by the junior Senator from Mississippi, my good friend, Senator Cochran. I was one of those who had the unseemly effrontery to challenge SDI. I guess it is unseemly effrontery. The President is for it. The Secretary of Defense is for it. We have, however, a lot of very, very good company. I hope you had a chance to read the lead story in the New York Times this morning, which indicated a report from the most eminent physicists in the country with the overwhelming recognition that SDI is a long, long way from touchdown. In fact, at one point they said that the directed energy weapons which they are really counting on to do the job if it is going to be done right had to be improved by a factor of 100 to 1 to 1,000,000 to 1.

The prospect that this enormously expensive project which will take so much of our military budget in the future will or will not work, it seems to me, is something that we have an absolute duty, those of us who have read the paper, who have followed what the competent scientists who have the qualifications that we do not have said.

AIR FORCE ROCKET REQUIREMENTS

Now, let me ask you this. Is it true that in years past the Air Force has expressed no special interest, no interest big enough at least to make a difference to the people of this committee for a heavy lift launch vehicle? Is it true that while the heavy lift launch vehicle would be a nice rocket to have, the Air Force in years past has believed that a fleet of rockets and the Shuttle could adequately meet your space transportation needs?

Mr. **ALDRIDGE.** I think that is a fair statement, and let me explain why.

As builders of satellites, you do not build a satellite for which you have no booster with which to launch it. So there have been upgrades obtained in the various boosters. We have gone from the little Atlas Es which we will use to Atlas Hs. We have gone from Titan 34B, which is the core vehicle for the Titan III; we strap solids on that. We have gone from a little Delta, which was basically a Thor IRBM, to a thrust-augmented Thor to, now, a Delta.

So we have gone through improvements in the boosters, but at the time, in years past, what has given us the advantage in cost has been the fact that we launched so many of them. In fact, in the late 1960's we were launching about 100 launches a year, and we kept getting very, very inexpensive costs to orbit.

Unfortunately, with the way the satellites are moving and the requirements are moving, the satellites are getting bigger. They are getting more complex. They are getting extended life. The direction has been that the satellites have gotten much, much larger, and we launch fewer of them; therefore, the launch cost per unit continue to grow.

Senator PROXMIRE. Well, recognizing, of course, that, as you say, the satellite need is a genuine need, is it not true that the real driver behind the heavy lift launch vehicle is the SDI? Is it true that the only reason we would need a really, really heavy lift launch vehicle would be to haul the SDI hardware to orbit?

Mr. ALDRIDGE. No, sir. In the study that I mentioned, the Space Transportation Architecture Study, a joint study directed by the President, jointly run by DoD and myself and Jesse Moore, who is the first chairman of that study, we in fact identified users for future space missions which identified the need for a heavylift vehicle in the future, independent of SDI.

What drives the heavy lift vehicle in time are the SDI mission and the space station mission.

Senator PROXMIRE. Let me challenge that to give you a figure to speak on. My staff and Senator Johnston's staff recently released our second SDI report. We note that, based on Air Force figures supplied to our staffs which were supplied by your agency, the U.S. space launch requirements without SDI would run at about 750,000 kilograms per year beginning in 1995. Our study notes that we could meet those requirements simply by adding to the U.S. fleet more of the present space vehicles. But if we add the requirement of orbiting all of these space-based kinetic kill vehicles in an early deployment of SDI, the Air Force says we would need to launch about 2 million kilograms annually. To do that we would need the heavy lift launch vehicle.

Is that assessment of your own Air Force accurate?

Mr. ALDRIDGE. I would challenge the interpretation of that assessment. I think the numbers sound right to me in terms of the total amounts per year.

The other point I was trying to make, however, on the heavy lifter (Advance Launch System) was the fact that we were looking for something to lower the costs. We are paying entirely too much money to launch a Titan IV. We are paying entirely too much money to launch a Shuttle. So the other objective of the heavy lifter was to cut the cost to orbit down for each of our satellites. That does not precluded us launching multiple satellites per launcher, but if we can get the cost down, that is the direction in which we have to go.

COST PER POUND OF LAUNCH

Senator PROXMIRE. Let me follow up on that cost question. Maybe General Piotrowski might want to comment, also. It costs about $3,000 to lift a pound of material into space, I understand, at the present time.

Mr. ALDRIDGE. That is pretty close.

Senator PROXMIRE. The Air Force and SDI envision building initially a heavy launch vehicle in the 1992–93 time frame with a launch cost of $1,000 per pound. Then you envision building a follow-on heavy lift launch vehicle by the year 2000. We are looking at $200 to $400 a pound.

Now, we have heard these kind of brazen predictions in the past. Do you really think we can have these phenomenal reductions in lost costs?

Mr. ALDRIDGE. I hope we can. We should at least work on the technology to prove that we can, and that is what we are trying to do.

We have costed ourselves out of the space business by having to pay $3,000 a pound to get to orbit. Now if the goal is to get down to the $200 or $400 per pound, and it appears that the technology programs will do so, then we ought to have a goal to do it. Even if we cannot achieve the goal and get a factor of three, that is of significant advantage to us for the long run of the space program.

Senator PROXMIRE. Mr. Secretary, all the predictions about the Shuttle turned out to be rosy. Do you not have a little pause about whether we can develop this technology and get it down from $2,000 and $1,000 to $200 or $400 per pound?

Mr. ALDRIDGE. I am very cautious about that, and that is why we have not started on a program. What we have asked for is to begin the technology that shows we can do it. Before we actually commit to a program we should at least try to get to the technology that shows we can do it. I think that is deserving. That is money well spent if it can, in fact, be done.

PROBLEMS IN U.S. SPACE PROGRAMS

Senator PROXMIRE. Think of this. Over the past 2 years, the entire U.S. space program, military and civilian, has been in a state of turmoil. We had the Titan 34D–7 failure in August of 1985, and we have documented it very well this morning. We had the Challenger accident in January 1986. We had the Titan 34D–9 failure in April 1986, and then the Centaur termination.

A lot of experts say one of the causes of all these problems of the U.S. space program has been trying to move too fast to meet an unrealistic schedule. Now the Air Force and SDI want to launch a crash program to build a heavy lift launch vehicle in what may well be an unrealistic development schedule.

Is it not time for our space program to settle down and improve the fleet it now has in place rather than rushing into another program to build a heavy lift launch vehicle?

Mr. ALDRIDGE. As I mentioned, Senator, there is no intent to go into a crash program. Our intent is to look for a vehicle that is lower cost to orbit and try to get a version of that vehicle earlier in time. I do not consider that to be a crash program. I think it is a program that the country needs for its space program.

The space program needs to continue to move and to provide the booster so that we can exploit some of these new ideas. That does not mean just the Department of Defense. This is not just a Department of Defense program, because NASA is looking at the heavy lifter for the space station assembly sometime in the 1993–94 time frame, depending upon how fast we could get a space station built, and then looking at it beyond that point for the possibility of some planetary exploration.

We need a capability to do that, and continuing with the programs that we have, with Shuttle and Titan IV, does not move us in the direction of expanding our space activities. Those are limited in payload sizes, and I think we need some kind of a capability to go beyond the lift capacity of the Shuttle, which is too expensive to launch, and the Titan IV, which is too expensive to launch over the long term. We need a lower cost capability.

If we can get improved lift capacity with lower costs, I think we ought to try. The program we have asked for is a technology program, not a deployment program. It is a technology effort to explore how we can do that, and we have done nothing more than that. There is no decision to go build one of the things. We have no decision to build an SDI. The President has not made an early deployment decision on that. We do know the President is committed to a space station sometime in the early 1990's. That is a requirement for a heavy lifter.

As the Department of Defense sees its future, payloads will require more survivability, more capacity, and longer lifetimes. We see these payloads getting larger and larger. We ought to have the capability to launch them rather than spending so much of our precious technology money trying to get the payload weights down to accommodate the existing launch capacity. I think that is the wrong direction to go. We should not be paying more for the truck. We need to be paying money for the improvement in our payloads, and I think we can do that. That is our program that we have laid out, a technology effort only.

Senator PROXMIRE. My time is up, Mr. Chairman. Thank you very much.

Chairman STENNIS. Gentlemen, if those of us present have no further questions, I propose that we give the Secretary a recess and proceed with another witness, unless you have something more now.

Senator COCHRAN. That is fine with me, Mr. Chairman.

Chairman STENNIS. All right, gentlemen.

We are not cutting off your testimony, Mr. Secretary?

Mr. ALDRIDGE. No, sir. I will be delighted to stay for few more minutes to listen to General Piotrowski's statement, if you do not mind.

Chairman STENNIS. Well, we want you to stay here with us and not leave because there will be other members, and I have a few more questions myself.

Mr. ALDRIDGE. All right, sir.

Chairman STENNIS. All right, the next witness is General Piotrowski.

U.S. SPACE COMMAND

STATEMENT OF GENERAL JOHN L. PIOTROWSKI, U.S. AIR FORCE, COMMANDER-IN-CHIEF, U.S. SPACE COMMAND

General PIOTROWSKI. Thank you, Mr. Chairman. I welcome this opportunity to address the committee on this important subject and have submitted a prepared statement for introduction into the record.

I would like to make a few comments, and I will keep them brief.

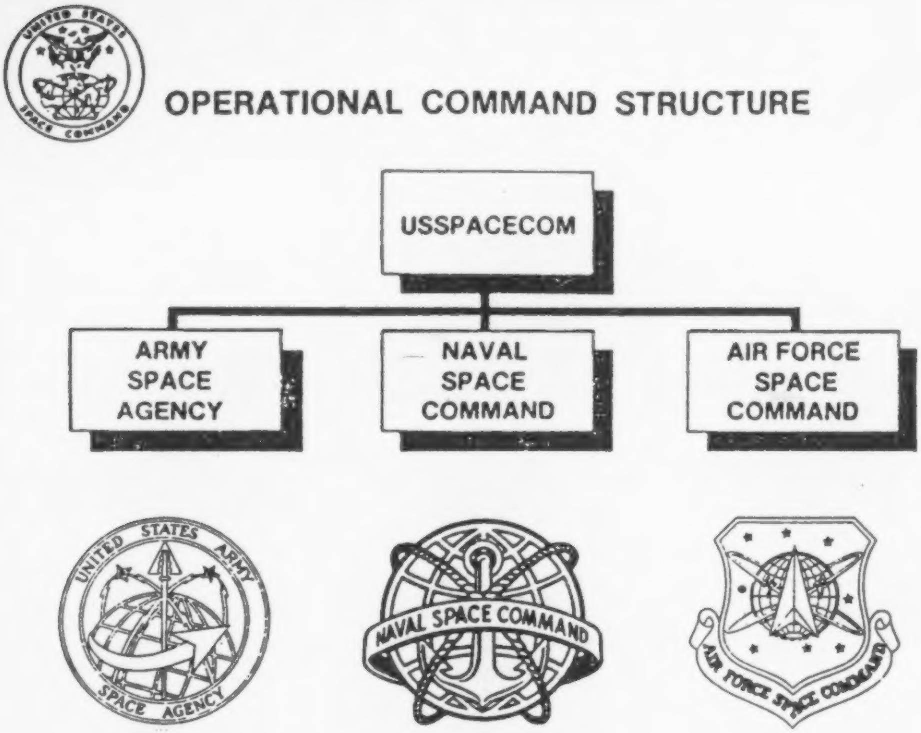
And I certainly want to thank you for this opportunity to talk about the U.S. Space Command and its components.

Chairman STENNIS. We are delighted to have you here. Without objection, the prepared statement of the General will be admitted into the record.

General PIOTROWSKI. Thank you, Mr. Chairman.

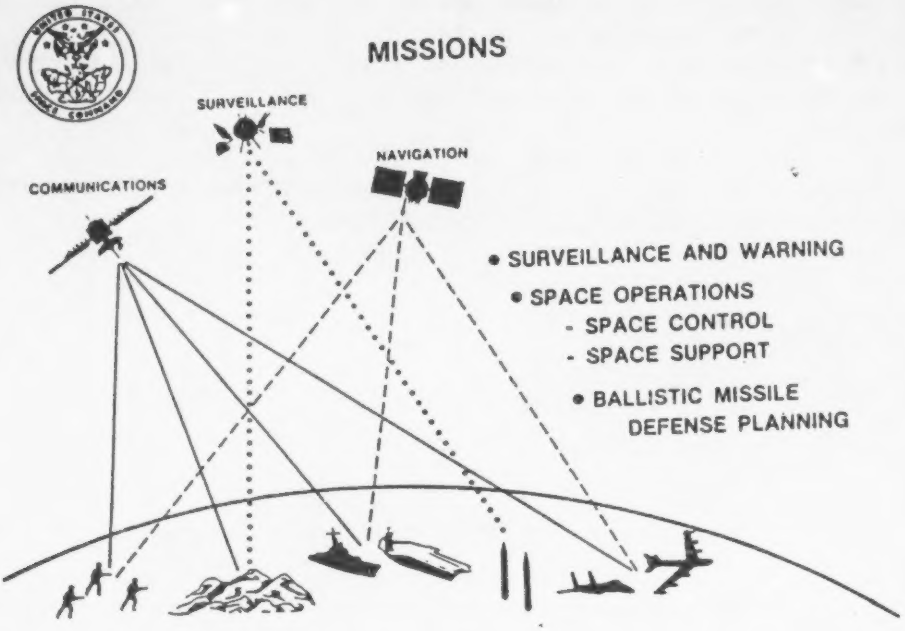
Now I would like to give you a very quick thumbnail sketch on the progress being made in the U.S. Space Command——

Chairman STENNIS. Yes, sir, and you proceed as you wish.


OPERATIONAL COMMAND STRUCTURE
USSPACECOM
ARMY SPACE AGENCY
NAVAL SPACE COMMAND
AIR FORCE SPACE COMMAND
UNITED STATES ARMY SPACE AGENCY
NAVAL SPACE COMMAND
AIR FORCE SPACE COMMAND

SPACE COMMAND STRUCTURE

General PIOTROWSKI. As shown here, this is the structure of the U.S. Space Command and its three components. Reading from your left to right, the Army Space Agency, which will become a full-fledged command on 1 October of 1987 or the start of the next fiscal year; the Navy Space Command, headquartered in Dahlgren, VA; and the Air Force Space Command, with headquarters at Peterson Air Force Base in Colorado.



MISSIONS

- SURVEILLANCE AND WARNING
- SPACE OPERATIONS
  - SPACE CONTROL
  - SPACE SUPPORT
- BALLISTIC MISSILE DEFENSE PLANNING

COMMAND MISSIONS

Now, I would like to show you the missions of these three commands as indicated on the chart on the righthand side. As you can see, the U.S. Space Command and its components provide the necessary surveillance and warning information to the North American Aerospace Defense Command so that that NORAD can provide the necessary warning and attack assessment to the national command authorities.

In addition, of course, is the space operations mission, assigned by the Unified Command Plan. This important mission is comprised of space control and space support.

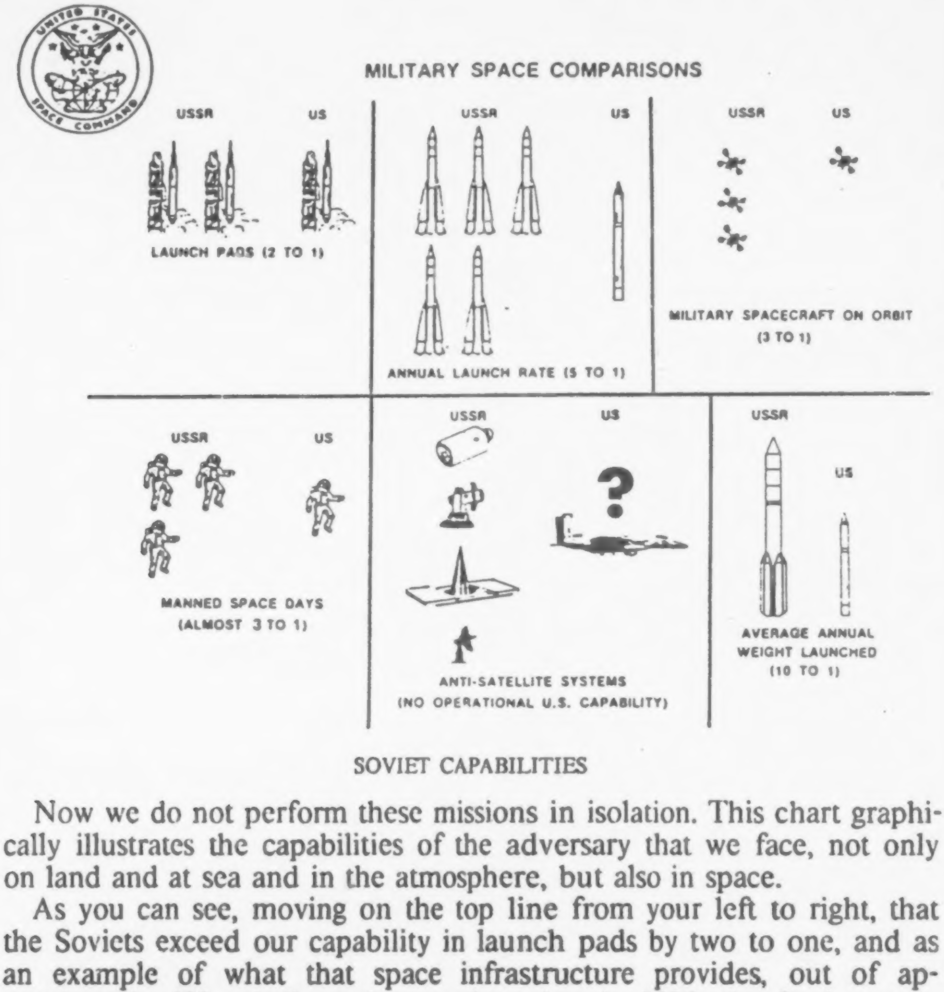
And if I can make an analogy, Mr. Chairman, space control is analogous to sea control. That is, it is important that we know what is in space, know what its capability and mission is, know where it is, and be able to negate hostile systems or protect friendly systems as the need arises.

I will talk more about the critical requirements that we have to be able to do these missions better.

Space support, the second element of space operations, is analogous to airlift. Much as the Military Airlift Command provides support, we provide support to our customers, the operational unified and specified commands. For example, we maneuver satellites as necessary to position them for proper surveillance or connectivity. We also provide space-derived warning, information to unified commanders.

I will talk more about support to unified and specified commanders as we go forward.

And lastly, U.S. Space Command is assigned the responsibility to plan for ballistic missile defense. And it is the U.S. Space Command, in concert with General Abrahamson and his Strategic Defense Initiative Organization that we provide the operators' requirements in terms of command and control and system performance, as the SDIO researches the various technologies that would be required to perform that mission.



SOVIET CAPABILITIES

Now we do not perform these missions in isolation. This chart graphically illustrates the capabilities of the adversary that we face, not only on land and at sea and in the atmosphere, but also in space.

As you can see, moving on the top line from your left to right, that the Soviets exceed our capability in launch pads by two to one, and as an example of what that space infrastructure provides, out of approximately 600 missile and space launches in 1986, the Soviets conducted nearly 500 of them.

To put that in greater perspective, of all of the foreign and domestic space launches, the Soviet Union conducted 86 percent. They also conducted 81 percent of all the missile test launches.

These statistics demonstrate the significant launch capability the Soviets have within their space and missile launch facilities which converts directly into assured access to space. Not only the pads themselves, but their turnaround capability is most impressive. The Secretary spoke eloquently and adequately of this. But the Soviets can turn around in a matter of hours and launch another satellite or another booster from a given pad.

Their average launch pad turnaround time is approximately 15 days. Our turnaround time is roughly 90 days. So we need to improve that, not only with the advanced launch system that the Secretary spoke of, but with the additional launch pads that the Secretary said are needed.

The Soviet annual launch rate is roughly five times greater than our own. In 1986, the Soviet Union conducted 95 space launches; the United States launched 9 satellites. On average, the U.S. launches under 20 satellites; the Soviets put over 90 satellites into space. So the launch ratio between the U.S.S.R. and the U.S. is approximately 5 to 1.

In terms of military spacecraft, if you look at the purely military aspects of our and their spacecraft, the Soviets outnumbers us 3 to 1.

Ninety percent of their spacecraft perform a military mission and are military in nature.

When we look at a comparison of manned space days, the Soviets have exceeded 5,000 hours in space, and they are increasing that capability with their MIR space station at the rate of 48 hours or roughly 50 hours a day.

ANTISATELLITE SYSTEMS

In terms of antisatellite systems, they of course have an operational system, a co-orbital killer satellite that has a capability of intercepting a large number of our low Earth orbiters. These low Earth orbiting spacecraft are very critical to providing information to our unified and specified commanders in the field.

They also have an antiballistic missile system that protects Moscow and which also has an antisatellite capability.

They have constructed at Sary Shagan a directed energy laser capability which our scientific community believes has the ability to wound and degrade our low Earth orbiting satellites.

And lastly, their launch weight capability, annual launch weight, exceeds ours by a factor of 10 to 1, or greater.

Now, there is an important factor behind this asymmetry, and it's not all in the Soviet favor. As the Secretary pointed out, and rightfully so, our satellites are more sophisticated, more capable, longer enduring, and by and large, serve us far better than those that serve the Soviet Union.

On the other hand there is a beauty and a quality in quantity itself. As a result of their historically short life satellites the Soviets have the ability to throw into space, very quickly, a replacement satellite for one that has degraded or suffered failure.

And in a period of crisis or tension or, hopefully never, war, the Soviets would have the capability to increase the number or to replace their satellites in very, very quick fashion.

If I could point out just one more thing about their antisatellite capability. While it is sometimes said that the Soviets have not tested their system since June 1982, it is clear to me that their co-orbital killer satellite is in fact an operational system.

And while they have not tested or exercised the complete system, the booster that they launch it on from Tyuratam has been launched 20 times in the last few years, and therefore, they have tested components of that system, or exercised components of that system on a regular basis.

As a result, I am absolutely convinced that it is a current, and very capable, operational system with the ability to take out our low Earth orbiting satellites.

Now let me give you a report—after that little bit of bad news—on the progress that we have made.

TACTICAL MISSILE WARNING SYSTEMS

Among the things that have been accomplished since the Space Command was formed roughly 19 months ago in September 1985, at the top of the list would be our ability to provide missile warning, tactical missile warning, to theater commanders.

We are in the final stages now of providing the information that we receive from our satellite early warning system and our ballistic missile detection radars to the European Command at Stuttgart, and are working with the Pacific Command in Hawaii to provide that same information, so that should we detect submarine or land-based ballistic missile short-range, intermediate range, ballistic missiles with trajectories toward territory that they are responsible for, we could provide them with immediate warning of an attack.

SUBMARINE-LAUNCHED BALLISTIC MISSILE PHASED ARRAY RADAR

The submarine-launched ballistic missile phased array radars that have been established around the periphery of the United States, on both the East and West Coasts, are now fully operational. The full system of four—with the last one at El Dorado, TX, coming on line on 10 May 1987—is providing sea-launched ballistic missile surveillance and warning. These sensors also provide space surveillance information.

GEODSS AT DIEGO GARCIA

The GEODSS or Ground Based Electro-Optical Deep Space Surveillance System at Diego Garcia was operational in January 1987. This system provides a very, very important capability to monitor Soviet systems that exist in geosynchronous orbit [deleted] degree longitude, an area where we previously have had very poor [deleted].

SATELLITES UNDER U.S. SPACE COMMAND

The U.S. Space Command and its components have taken operational command of a number of satellites. The Defense Satellite Communication System, the Navy Fleet Satellite communication system, the Defense Metereological Satellite Program, the Global Positioning System, or NAVSTAR, and are gearing up to take command of the Military Satellite Communications Satellite when it becomes operational.

I would like to also point out that the Global Positioning System, or NAVSTAR, is currently under the operational control of blue suit Air Force operators, but soon will have Army operators as well, in Colorado at Falcon Air Force Station in the Consolidated Space Operations Center.

The first class of space cadets, so to speak, have graduated from the space training course at Lowry Air Force Base, and the second class will soon graduate, giving us a pool of talented and trained individuals. They are very, very bright young officers.

MOBILE AND SURVIVABLE COMMAND CENTER

There have been many survivability enhancements provided to our space systems. For example, the Space Command now has a mobile and survivable command center. We have mobile ground stations for receiving information from a number of our important satellites, and we have established an alternate space surveillance processing center at the Naval Space Command headquarters in Dahlgren, VA. We exercise this capability on a weekly basis, and it works very well.

In addition, there have been a number of reliability and performance upgrades to our Satellite Early Warning System which are now completed at some locations and ongoing at others.

In December of 1986, there was a EHF transponder launched on a FLTSATCOM satellite as a proof of concept and test of the military satellite communications system. It is working beyond our expectations.

This fall, it is hoped that the Army Space Agency will become a command, and at that time they will take over responsibility for operating the Defense Satellite Communications System operations centers, a capability that they have the expertise to do very well. The Army Space Command will be a welcome addition to the U.S. Space Command.

I should mention that the U.S. Space Command has taken over certain operational aspects of the satellite control network at Sunnyvale, CA, and that facility will be assigned to the Air Force Space Command in October of this year.

Now, on balance, we have made great progress in military space operations. However, as I pointed out, there is a very robust adversary and threat that we face in space.

UNITED STATES SPACE COMMAND

MILITARY SPACE REQUIREMENTS

- ASSURED ACCESS TO SPACE
- IMPROVEMENTS IN SPACE SURVEILLANCE
- INCREASED SUPPORT TO TERRESTRIAL FORCES
- AN OPERATIONAL ANTISATELLITE CAPABILITY

In order to improve our capability and to be able to perform assigned missions in the Unified Command Plan, there are certain upgrades that are absolutely necessary to meet the challenges we currently face.

The Secretary spoke eloquently on assured access to space, and I strongly endorse the Secretary's comments.

In addition, it's important that we continue to provide improvements to our space surveillance capability. For example, as the Soviets bring on line their space transportation system, their shuttle, they will be able to launch spacecraft from that shuttle over the Soviet land mass, or over the Indian Ocean, directly into geosynchronous orbit—satellites that we will have no knowledge of unless we can put a deep space surveillance radar somewhere in the area of 0 to 90 degrees longitude.

Surveillance of space over the Eurasian land mass is a very important requirement. It is supported by the Department of Defense, and you will see it coming forth as part of one of our very important requirements.

In addition, to be able to surveil the low Earth orbit maneuvering satellites, we need a system capability that is currently embodied in the Space Surveillance and Tracking System as part of the Strategic Defense Initiative.

Absent the SDI, it will be necessary to develop a Space Surveillance Tracking System so that we can monitor the low Earth orbit Soviet satellites that have a maneuver capability.

A good example would be their co-orbital killer satellite. Should it maneuver over the Soviet land mass, we would not be able to detect those maneuvers, and would not then be able to determine which satellites were the victims of that particular killer satellite. So you can see that the ability to keep track of maneuverable satellites at all times is a very important requirement.

As I mentioned, we are providing increased support to terrestial commanders through missile warning. We are also looking at other information that we can glean from operational satellites and provide that information to field commanders. I could speak more of that, Mr. Chairman, in a closed hearing.

As shown on this chart, we critically need an operational antisatellite capability to provide the President a deterrent to the use of the Soviet ASAT, which is a threat to many of our very important satellites that provide information to the DOD and the national command authority.

This is also an important requirement. An ASAT not only deters Soviet use of their ASAT by holding Soviet satellites at risk but equally important enables the United States to respond in kind, as opposed to having to escalate, should the Soviets use their ASAT in a period of tension and crisis. Without an antisatellite capability, we would be forced to either take the loss and do nothing, or to, in some form, escalate horizontally or vertically in response to a Soviet attack on one of our satellites.

OCEAN RECONNAISSANCE SATELLITES

And lastly, we need ASAT as a means of protecting our own satellites and our forces. Let me give you an example. The Soviets have two ocean reconnaissance satellites, one called the RORSAT, or Radar Ocean Reconnaissance Satellite, and the EORSAT, the Electronic Ocean Reconnaissance Satellite, both of which directly target our maritime systems.

These satellites downlink right into Soviet capital ships, and give them location data with the accuracy necessary to immediately target and attack our surface fleets.

The ASAT holds at risk the EORSAT and the RORSAT. And we need that capability. So as a deterrent, as a response in kind, as an ability to provide support to our theater CINC's, ASAT is a very, very important capability.

And, as you are aware, the miniature homing vehicle gives us the only near-term operational capability.

I would add to this list one additional requirement, and that is, the requirement for a wide area surveillance system in space to provide us immediate information, surveillance of the Soviet Backfire, Blackjack, and Bear-H aircraft that are capable of attacking North America with long-range cruise missiles.

And lastly I would say, Mr. Chairman, that I would urge this committee and the Congress to provide an adequate and just compensation to our very dedicated, very bright, very talented officers, and enlisted personnel, who operate through all services their space command systems, these sensors that provide us the necessary early warning and capability to defend this great Nation of ours.

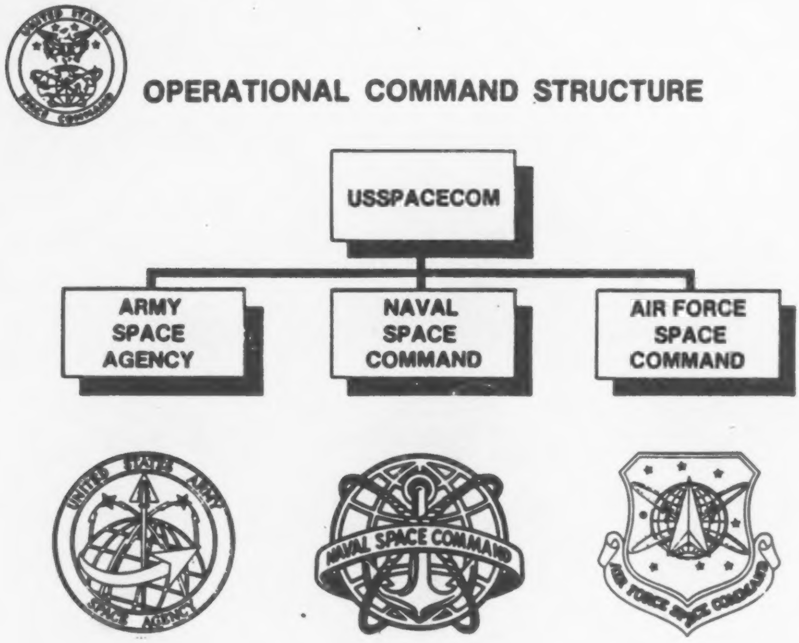
In this regard, Mr. Chairman, I am speaking of all forms of compensation, not only pay, but the traditional forms of compensation, such as recreation facilities, dependent medical care, and adequate compensation for military directed movements from one duty station to another.

Mr. Chairman, it's been my pleasure to provide this thumbnail sketch. I would be happy to respond to any questions you might have.

[The prepared statement of General Piotrowski follows:]

PREPARED STATEMENT OF GEN. JOHN L. PIOTROWSKI, USAF
COMMANDER-IN-CHIEF
UNITED STATES SPACE COMMAND

Mr Chairman, members of the (sub) committee, my comments will focus on the progress being made in our nation's military space program. I will explain the reasons for formation of a unified command for space -- the United States Space Command, briefly describe my responsibilities as commander in chief of that unified -- or joint service -- command, discuss elements of the Soviet military space program, and assess the progress we are making in our own military space program.

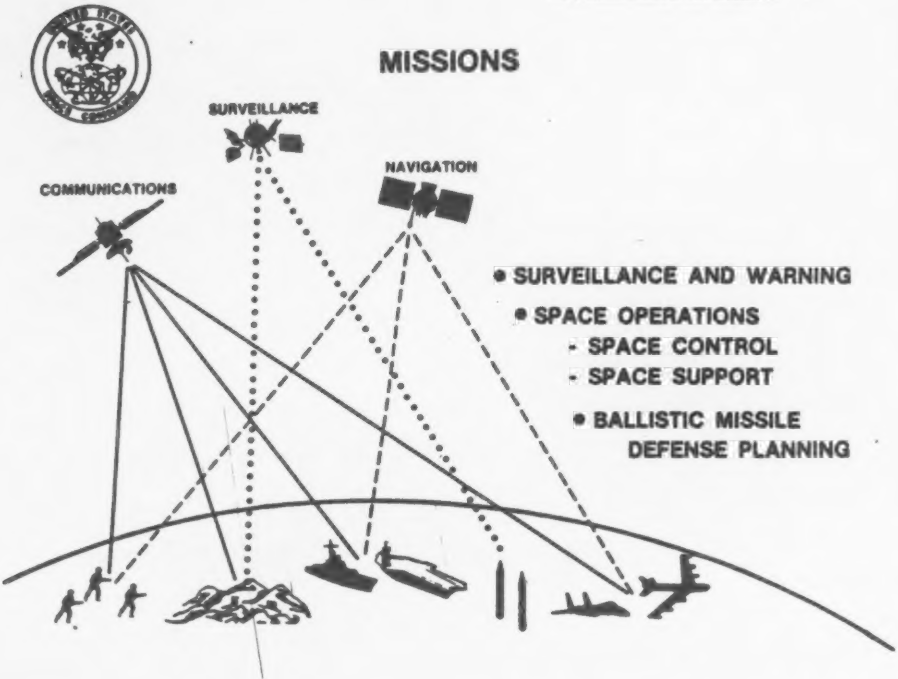

OPERATIONAL COMMAND STRUCTURE
USSPACECOM
ARMY SPACE AGENCY
NAVAL SPACE COMMAND
AIR FORCE SPACE COMMAND

Real progress in our nation's military space program began in 1983, when General Charles Gabriel, then the Air Force Chief of Staff, formally proposed the formation of a unified command for space. He envisioned a command which would include Army, Navy, Air Force and Marines and be responsible for overseeing the operational employment of military space systems; systems upon which the United States and its allies were becoming more and more dependent. At that time, operational control of the nation's military space and space-related assets was spread across the Services, the Joint Chiefs of Staff and several different governmental agencies. This need for a unification of effort led to the formation of the United States Space Command in September 1985.

Preceding this organization were two major Service commands with responsibility for their respective Services' space-related infrastructure, the Air Force Space Command and the Naval Space Command. With formation of the new unified command, these major Service commands became components of the United States Space Command. In August 1986, the Army Space Agency was activated and became the Army component. US Space Command capabilities are derived from its headquarters staff and the force structure that component commands bring to the unified command. Each component is responsible, through its Service, for resource management of the systems it is assigned, while the unified command is responsible for their operational employment. On 6 February 1987 I became Commander in Chief of the United States Space Command.

In addition, I wear a second hat as that of Commander in Chief of the North American Aerospace Defense Command -- NORAD. NORAD, as you know, has been responsible for the air defense of North America since 1957, and for the tactical warning and assessment of an air, missile, or space attack on North America since 1975. The United States Space Command provides NORAD the missile warning and space surveillance force structure NORAD needs to perform its important warning and assessment misison. The dual-hatting of CINCNORAD and USCINCSPACE was approved because these systems can perform functions in support of both NORAD and the United States Space Command, and because of the resulting need to assign operational control to a single individual.

The United States Space Command missions are assigned by the President when he signs the Unified Command Plan (UCP). Those missions as stated in the current UCP include: surveillance and warning; space operations; and, operational planning for a ballistic missile defense. I will discuss each of these in turn, beginning with surveillance and warning.



MISSIONS

- SURVEILLANCE AND WARNING
- SPACE OPERATIONS
  - SPACE CONTROL
  - SPACE SUPPORT
- BALLISTIC MISSILE DEFENSE PLANNING

US Space Command's surveillance and warning mission includes three specific responsibilities: first, supporting the North American Aerospace Defense Command (NORAD) with the missile warning and space surveillance force structure necessary to fulfill the US commitment to the NORAD Agreement; second, providing support as necessary to other commanders in chief who have established requirements for ballistic missile and space attack warning for areas other than North America; and third, should NORAD become dysfunctional for any reason, providing the US National Command Authorities integrated tactical warning and assessment of a space, missile, or air attack on the continental United States.

Surveillance capabilities are prerequisite to space operations. Before we can undertake operations in space we must have the ability to see and evaluate activity in that medium. Space operations include the missions of space control and space support, and both are dependent on space surveillance.

Space control is similar to sea control, in that the objective of space forces is to contribute to national security by assuring that the forces of hostile nations cannot prevent our own use of space. Space control includes using the space surveillance and warning network of sensors for monitoring activities in space; assessing the nature of those activities; ensuring that friendly forces have access to space; and, when necessary and directed by the National Command Authorities, denying an adversary the use of space-based systems that provide support to hostile forces. The exercise of space control is US Space Command's warfighting responsibility.

The United States Space Command's space support responsibilities include maintaining and sustaining satellite systems assigned to US Space Command by the Joint Chiefs of Staff; providing surveillance, navigation, and communications support to terrestrial-based forces; and, supporting the launch and orbit requirements established by other operational commanders.

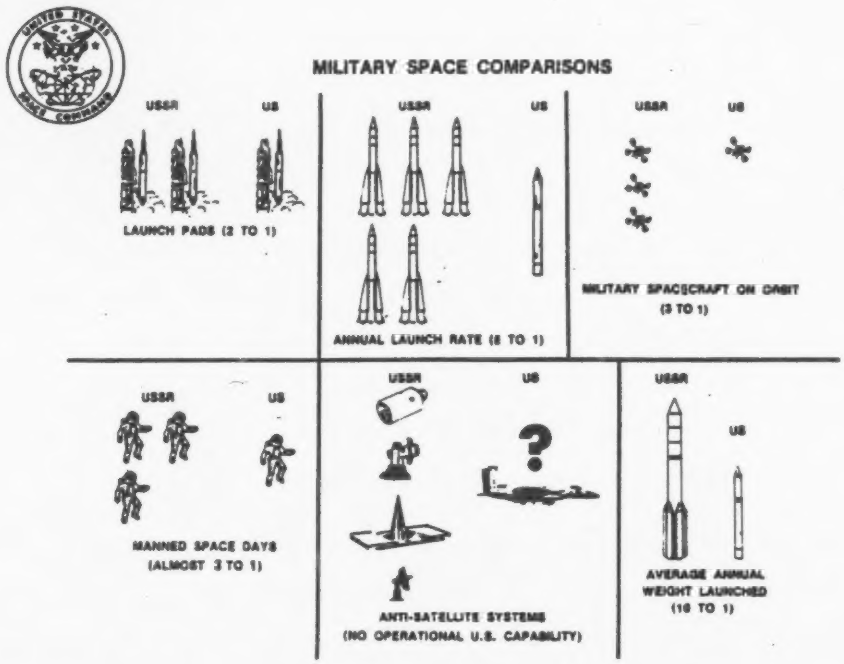
Finally, the US Space Command is assigned responsibility for ballistic missile defense planning. In this capacity, the command is the focal point for the identification, collection, and documentation of worldwide US military ballistic missile defense requirements. Should the decision be made to develop and deploy forces capable of engaging attacking ballistic missiles during strategic conflict, US Space Command-developed requirements will guide the development and deployment process to ensure that the resulting force structure satisfies military requirements.

The environment in which these missions must be performed is very dynamic. It is influenced by technological changes, by the requirements of other unified and specified commands, by adjustments in our national interests, and most dramatically by changes in the capabilities of our adversaries. Clearly, the adversary that presents the most serious challenges to our interests in space is the same adversary we face on land, at sea, and in the air. Because space capabilities support terrestrial and maritime national security forces, we must reckon with Soviet space-based and space-related capabilities. A few words on the respective Soviet and United States space forces is in order.

The US and USSR space programs differ in philosophy and orientation, although in other respects they are similar. Both countries use satellites for communications, navigation, meteorology, geodesy, surveillance and warning. Both have grown increasingly dependent on space systems. Both countries can communicate almost instantaneously around the world, navigate anywhere, obtain weather data in real-time and monitor adversaries more closely than ever before.

The emphasis for each country, however, is different. The Soviets view space as an extension of the atmosphere and see control of space as a prerequisite for meeting terrestrial military objectives. As a consequence they have embarked on a program whose goal is domination of space in conflict and the ability to intimidate the US and our allies during peace or crisis. The majority of Soviet space systems -- over 90 percent -- have military or military related functions. Our militarily significant space systems are fewer in number. The US tends to build sophisticated, multi-mission satellites using state-of-the-art technology. These satellites have relatively long lives. The Soviets, on the other hand, build simpler, single-purpose satellites with shorter on-orbit lifetimes. Unlike our own, the majority of Soviet satellites are in near- or low-earth orbits. Soviet constellations require more frequent replenishment. Additionally, a very large number of Soviet satellites are used for surveillance and are planned for short operating lifetimes. The differences in design and utilization help explain why our average annual launch rates are so different. As a comparison, over the last decade, the United States has averaged less than 20 civil, commercial and Department of Defense space launches per year, while the Soviets have averaged over 90. The quality of United States' satellites is demonstrated by the fact that despite the nonavailability of the space shuttle and other booster systems for over a year, we have not witnessed a significant degradation in the capabilities provided by force enhancement satellites.

Nonetheless, several aspects of the Soviet's space program are a cause for concern.


UNITED STATES SPACE COMMAND
MILITARY SPACE COMPARISONS
USSR
US
LAUNCH PADS (2 TO 1)
USSR
US
ANNUAL LAUNCH RATE (5 TO 1)
USSR
US
MILITARY SPACECRAFT ON ORBIT
(3 TO 1)
USSR
US
MANNED SPACE DAYS
(ALMOST 3 TO 1)
USSR
US
?
ANTI-SATELLITE SYSTEMS
(NO OPERATIONAL U.S. CAPABILITY)
USSR
US
AVERAGE ANNUAL
WEIGHT LAUNCHED
(10 TO 1)

The Soviets have a massive space support infrastructure -- including an almost two to one advantage over us in launch pads -- and multiple, reliable space booster options which virtually guarantee their access to space. This combination of maintaining a high annual launch rate, having a large number of reliable boosters and launch facilities, "hot" production lines for spacecraft and boosters, and a large cadre of personnel experienced in every aspect of space systems production, support and space operations gives them tremendous advantages. For example, our launch pad "turn-around" times -- the interval between launches from the same pad -- are measured in months. The Soviets, on the other hand, can re-launch some boosters from the same pad in a matter of hours and less than a month in all cases. Increased use by the Soviets of longer lasting, more capable satellites in deep space indicates the narrowing of the technological gap that has separated our programs since the early 1960s. In 1980, only 22 percent of Soviet satellites operated from deep space; today around 40 percent operate there. The already extreme, almost three to one man-in-space experience gap continues to widen, while the likelihood of an operational Soviet space shuttle and aerospace plane comes ever closer. Another very serious concern revolves around the present and growing potential threat embodied in Soviet antisatellite (ASAT) capabilities.

In the early 1970s, the US decommissioned its operational antisatellite (ASAT). The Soviets, however, continued ASAT research and development, and now maintain the world's only operational ASAT system, as well as probable capabilities to attack our satellites with other means -- ground-based lasers and antiballistic missiles (ABMs).

The Soviets have also developed reconnaissance satellites to provide targeting data to weapons platforms which can quickly attack US and allied surface fleets and land-based forces. For example, if the United States were ever called to enforce the free flow of oil to the Western World through the Straits of Hormuz or to deploy military force to fulfill our obligations to our NATO allies, Soviet Radar Ocean Reconnaissance Satellites

(RORSAT) and Electronic Intelligence Ocean Reconnaissance Satellites (EORSAT) could provide time-critical tracking and targeting of US troop reinforcements in ports and of US convoys and battle groups during their movement across the oceans. Additionally, other Soviet satellites -- electronic intelligence and photoreconnaissance -- could provide timely information on the disposition and capabilities of US or allied forces. Undeterred by a US capability to put these hostile systems at risk, these Soviet capabilities have the potential to seriously jeopardize our ability to project and sustain US forces and to fight once engaged.

Recognition of Soviet space goals and present and future Soviet capabilites was one of the driving forces behind the new DOD Space Policy. The policy presents guidelines which govern the planning for or conduct of military space activities that help meet national security objectives. At present, the US Space Command is the only unified or specified command specifically charged with space missions assigned by the Unified Command Plan.

The operational focus of the new DOD Space Policy, the progress being made in recovering from the grounding of the United States' launch fleet, and the rapid maturation occurring in the US Space Command are all encouraging. However encouraging these signs of progress are, we must recognize that they are first steps. Measured against the standards set by the DOD Space Policy and the requirements inherent in the missions assigned to the US Space Command, there are several areas that need to be bolstered. Among these I include our ability to get necessary military payloads on orbit, improving the capabilities of our space surveillance network, increasing the support provided to terrestrial forces, and development of an operational anti-satellite capability.

MILITARY SPACE REQUIREMENTS

- ASSURED ACCESS TO SPACE
- IMPROVEMENTS IN SPACE SURVEILLANCE
- INCREASED SUPPORT TO TERRESTRIAL FORCES
- AN OPERATIONAL ANTISATELLITE CAPABILITY

Let me begin by reinforcing Secretary Aldridge's remarks on the subject of assured access to space. We believe the mixed fleet recovery plan is a good one and strongly support it. It is clear from the trend of military space programs that US military forces are becoming increasingly dependent upon space systems. Assured access to space is a prerequisite for assured communications, assured navigation, and assured surveillance and warning; all of which are essential to deterrence and national security.

As a result, those of us charged with planning for a prudent space force consider acquisition of a diversified fleet of launch vehicles a top priority. This diversified fleet should be built with three criteria in mind: first, the requirement to avoid reliance on any particular system; second, the requirement to ensure that military launchers are always available and responsive to unexpected demands; and third, the requirement to reduce the cost of placing payloads on orbit.

Over time, operational military requirements may mandate a different approach to satellite design and replenishment schemes.

Air Force Space Command, the Air Force component of the United States Space Command, is evaluating the merits of employing smaller, less complex satellites in the future. As envisioned, these satellites would have shorter design lives, would be less costly, and would be replenished at more frequent intervals.

While still at the conceptual stage, the proposal warrants further examination because its adoption could result in improvements to our entire space infrastructure. It is an infrastructure composed of scientists and engineers, spacecraft and booster production facilities, personnel, procedures, launch complexes, and control centers. Assured access to space is dependent on that entire infrastructure. Acquisition of a mixed fleet of boosters is only one element of that infrastructure. On the horizon are increased military man in space operations; operations which will require a more robust ground support architecture.

It would be prudent, therefore, to have more than one center for control of manned spaceflight operations, especially during a crisis. A secure military center would coordinate: shuttle mission activities; future operations involving the National Aerospace Plane; or even DoD use of the Space Station. The recently cancelled Shuttle Operations and Planning Complex at the Consolidated Space Operations Center in Colorado was designed to fill these requirements. While acknowledging that scarce resources are insufficient to fulfill all validated needs, it should also be acknowledged that the requirement for a Space Operations and Planning Complex still exists.

Acquiring the capability to support launches on demand is the ultimate goal. Our entire infrastructure for manned and unmanned operations should evolve with that goal in mind. Yet, the ability to launch on demand is not our only requirement. We also need to improve our space surveillance system, since space surveillance is a prerequisite for the conduct of all military space activities.

The mission of the current Space Surveillance Network is to detect, track, and identify all man-made objects in near earth and deep space orbits. Included in this mission are maintenance of a space catalog, collision avoidance, satellite attack warning and assessment, as well as Space Object Identification and Mission Payload Assessment of unknown or unfriendly objects.

The current system is a predictive system rather than a constant surveillance system. It includes ground based wide and narrow band conventional radars, phased array radars, electro-optical sensors and space based infrared detection sensors. Not all of these sensors are owned and operated by the US Space Command or its components. Each sensor falls into one of three categories: dedicated or full time; collateral or part time; and contributing or "as necessary". Today, 30 separate sensors make up the space surveillance network.

While the current deep space and near earth surveillance system is generally adequate for today's requirements, it will not be able to handle increased Soviet space activity, particularly Soviet shuttle operations. However, modest improvements to both deep space and near earth surveillance capabilities are underway.

Deep Space Surveillance, or that beyond an altitude of 3000 nautical miles, is presently inadequate. To bolster this critical system we have taken two initiatives to increase available resources. The National Science Foundation Ultrahigh Frequency (UHF) Radar at Massachusetts Institute of Technology (MIT) Lincoln Laboratory and the Electro-Optical Test Site at Socorro, New Mexico, have been acquired as contributing deep space search sensors. The fourth of a five site Ground-Based Electro-Optical Deep Space Surveillance (GEODSS) system at Diego Garcia became operational in January of this year. Even with the site at Diego Garcia, there is a critical real-time eastern hemisphere geosynchronous, or deep space coverage gap. Most of the Soviet geosynchronous satellites are in this gap, and there are many critical US satellites in this same region. Our surveillance capability for this critical area is deficient.

To address this deficiency, we are currently examining a possible cost effective solution called the Deep Space Warning Radar. This ground-based system would use current wide-band coherent radar technologies, such as those in use at MIT's Haystack radar. Such an off-the-shelf system would be able to provide high resolution images, as well as detect and track small objects. A Deep Space Warning Radar can support both the deep space intelligence and space operations requirements.

As indicated earlier, most Soviet spacecraft are military spacecraft in low- or near-earth orbits. Objects in space whose altitude is less than 3000 nautical miles are considered in a low earth orbit. Approximately two thirds of our surveillance sensors provide surveillance of the low or near-earth regime. That is, in response to tasking, normally based on mathematical predictions made by a computer, the sensors search a very limited area in space to see if an object is where it is supposed to be, according to a set of orbital parameters in the computer data base. When the object is detected, precise positional data is fed back to the computer and the orbital parameters are updated. Should the object not be detected, an orbital analyst will adjust the radar's search pattern for a future "opportunity".

Maneuvering spacecraft present a significant challenge. Maneuvers change a satellite's orbit and hence its ground trace and area of coverage. Depending on the type of satellite, these changes can have significant implications for terrestrial forces.

For example, a Soviet ELINT, photoreconnaissance, or Radar Ocean Reconnaissance Satellite (RORSAT) that maneuvers may mandate a change in the disposition of friendly forces that will come under its area of coverage. Maneuvers might also signal the presence of an area of interest, or be a prelude to threatening terrestrial or maritime activities. Even a small "housekeeping" maneuver requires assessment because it may bring the satellite into conflict with other orbital objects. Because the majority of militarily significant Soviet spacecraft operate in the near earth regime, surveillance of that regime is critical.

To improve near earth surveillance capabilities several upgrades are underway. A part-time tracking radar at Kaena Point, Hawaii, is getting both hardware and software improvements as well as a larger crew, bringing it to full-time sensor status. MIT is developing a software package for the US Space Command, called the New Foreign Launch Processor. Given initial sensor data and the historical data base -- data from past launches -- the software will define a volume in space and automatically task the appropriate sensor to search the defined area. This process is repeated until the object is detected, after which a computer program would automatically complete the element set. Then, based on the current workload, it will determine the most efficient future tasking of the surveillance network to maintain the appropriate status on that given object.

Programmed upgrades to our missile warning network will also improve space surveillance capability. For example, hardware, software and power upgrades at the Robins Air Force Base PAVE PAWS radar -- or Precision Acquisition Vehicle Entry Phased Array Warning System -- will dramatically increase its detection capability. Additionally, we plan to locate a radar in the Western Pacific to complete our Pacific coverage. Pacific coverage is critical because it provides initial detection of Soviet space launches, allows early assessment of payload and mission, and cues other sensors to search for the object. Even with improvements that enhance our ability to handle today's surveillance requirements, the near-earth network still has significant coverage gaps which could be exploited by a determined adversary.

The Soviet shuttle is more worrisome because it will have the ability to deploy payloads beyond the coverage of today's space surveillance network and, therefore, greatly complicate our ability to monitor and assess the nature of Soviet space activity. Two possible solutions to this problem are extensively expanding the ground-based network or developing a complementary space-based space surveillance system. Negotiations for use of land and costs of buying enough sensors makes massive expansion of the ground-based network impractical. This is evidenced by the eight year delay in siting the fifth Ground Based Electro-Optical Deep Space Surveillance System (GEODSS) sensor, programmed for construction in Portugal. Therefore, we are currently investigating the feasibility of using an optical space-based system, a Deep Space Warning Radar, or the Space Surveillance and Tracking System (SSTS) being developed by the Strategic Defense Initiative Organization (SDIO), as possible solutions that could satisfy our needs.

While we have made significant strides in making better use of existing sensors, we still must do more to improve both deep space and near earth space surveillance. We cannot afford to allow our space surveillance capability to fall behind.

The absolute need for accurate space surveillance data is best exemplified by the work that goes on in one of the operations center inside the Cheyenne Mountain Complex: the Space Defense Operations Center, or SPADOC.

SPADOC is the nation's space situation center. It is unique in that it is the only place where the entire friendly and non-cooperative space situation is available. SPADOC is currently being upgraded from a primarily manual work center with limited computational capability, to an automated computer-aided situation center. This upgrade is the first major upgrade to the command and control of our Space Defense and Space Control activities. Using this new capability, the SPADOC will receive critical status and warning inputs from space system owners and operators, the intelligence community and our space surveillance network. It will then correlate and fuse the information to assess the space situation, with emphasis on pinpointing threats to our space assets. If a threat exists, SPADOC will warn our vulnerable assets, recommend countermeasures to that threat, and provide the space situation and threat data to the Commander in Chief of the US Space Command and the National Command Authorities. Some of the threats that SPADOC is being designed to deal with are the already operational Soviet co-orbital ASAT, directed energy weapon attacks, electronic warfare, ground attack and sabotage, and exoatmospheric nuclear bursts.

Associated computer upgrades to SPADOC will also accommodate an expanded space object catalog and better satisfy increasing requirements for highly precise satellite location predictions. SPADOC's new computational center will provide the integrated analysis and rapid turnaround required to respond to current and future space threats. Without it, the defense of space assets is degraded and our space control capability will be indefinitely tied to an aging computer system.

As I mentioned earlier, one of the responsibilities of US Space Command is to provide space support to the other CINCs. This is accomplished by consolidating requirements for space systems, providing direction to the component commanders for funding priority and new system starts, and employing assigned space assets through the component commanders.

Effective employment of fighting forces, particularly when they are outnumbered, demands real-time, secure, clear communications, the ability to rapidly coordinate maneuvers "on the fly," and a minimum of essential information on the enemy and the environment. Space systems can meet these needs.

An example is the planned MILSTAR satellite communications system. MILSTAR will serve as the cornerstone in enhancement of our command, control, communications and intelligence capabilities. It is being designed to provide minimum-essential, worldwide, survivable and enduring warfighting command and control communications through all levels of conflict. MILSTAR will provide the Army, Navy and Air Force as well as the National Command Authorities with assured communications to support execution of essential strategic and tactical missions. MILSTAR functions include emergency action message (EAM) dissemination, specified and unified command conference calls, force direction, report back, and tactical communications.

The MILSTAR system is composed of a multi-satellite constellation of advanced-technology satellites, a survivable satellite control structure, and more than 2000 joint-service, interoperable terminals. Use of extremely high frequency (EHF) and other advanced communications techniques enables the system to function effectively in nuclear and radio electronic combat environments, while still greatly reducing the probability of signal interception. Satellite crosslinks provide global connectivity without dependency on vulnerable ground relay nodes, and sophisticated encryption techniques provide communications security. Additionally, a distributed ground control system will support MILSTAR's satellite requirements through the conflict spectrum. These attributes provide a degree of survivability, security, and endurance not present in existing communications systems. MILSTAR will enhance our national capabilities by ensuring that critical communications capabilities will be there when we need them. Its capabilities make

MILSTAR one of our highest priority command, control, and communications programs.

Equally important as communications and available to friendly forces down to the individual foot soldier, NAVSTAR Global Positioning System data will provide a real edge to both our terrestrial and maritime forces. First, it will ensure synchronized timing and the use of a common positional reference accurate to 16 meters or less. Applications will include coordinating firepower, stationkeeping in adverse weather at sea, search and rescue, air refueling rendezvous, and accurate all-weather weapons delivery.

As part of the on-going planning, programming and budgeting system, the Services -- principally through their respective US Space Command components -- are identifying additional requirements that space based systems may best satisfy.

By allowing the coordination of moving friendly forces, ensuring quick, accurate and jam-free communications, and providing detailed, real-time surveillance data, space systems give our terrestrial commanders the support they will need to help them overcome superior numbers.

In view of the importance of our space assets and the continued need to project power to deter war, stabilize crises, and control escalation during conflict, it is essential that the US develop and deploy an operational ASAT to deter the Soviets from exploiting their present ASAT and space-based targeting capabilities. By not testing and deploying a US ASAT system, we have -- in essence -- created a sanctuary in space for these threatening Soviet systems while US space systems remain vulnerable to Soviet attack. From this perspective, such a concession to the Soviets degrades our capability, and thus deterrence.

The US ASAT program is designed to redress this asymmetry. It is focused explicitly on those Soviet satellites which threaten US and allied terrestrial forces in time of war.

At the President's request this past fall, the Secretary of Defense completed a comprehensive review of the US ASAT program. The review found the present F-15 air-launched system to be the most viable path to providing a near-term counter to the Soviet threat. The review also found that it is prudent for the US to invest in alternative ASAT systems to complement the F-15 air-launched ASAT.

The United States has a major security interest in safeguarding its space assets and in deterring conflict -- worldwide. The alternative -- to allow the Soviets to dominate space and bring unrestricted force to bear worldwide -- is unacceptable. Yet, without an option to respond to potential Soviet attacks -- in every medium where forces operate -- this unacceptable situation endures. Both the US and our allies are critically dependent on an ASAT capability -- a cornerstone of my Space Control mission capability.

I testified on the requirement for a resumption in developmental testing of the US antisatellite to the Strategic Forces and Nuclear Deterrence Subcommittee of the Senate Armed Services Committee on 26 March 1987, and I am compelled to restate that requirement to this body.

Progress in our military space program is dependent not only on hardware and software. It is, in the final analysis, dependent on people. As an emerging command, with critical and ever increasing missions, manpower is of extreme importance and great concern. US Space Command has undergone significant organizational and mission changes since its activation 18 months ago. The command absorbed selected Aerospace Defense Command (ADCOM) missions when ADCOM was deactivated on 19 December 1986. At the same time, US Space Command has expanded its space support and space control responsibilities. Because of this growth in responsibilities, the command requested a growth in staffing from 612 to 735 billets in the FY87 Joint Manpower Program. The Army, Naval, and Air Force organizations' roles in space have expanded and will continue to expand as new systems become operational. Reductions in current or projected manpower that could degrade US Space Command's mission capability must obviously be avoided.

In conclusion, you have a unified United States Space Command. We are maturing rapidly and working the problems that have been identified. We are making progress.

Our ability to deter in the future would be enhanced by assured access to space, by improvements in space surveillance, by expanding the creative and effective ways in which space can support our terrestrial and maritime commanders, and by acquisition of an antisatellite capability.

I look forward to your questions.

RELIANCE ON SPACE BY U.S. ARMED SERVICES

Chairman STENNIS. Thank you very much. You have already offered your witness statement for the record?

General PIOTROWSKI. That is correct, Mr. Chairman.

Chairman STENNIS. Now, General, suppose you try to take a look at it this way. Now, which of our armed services are more or less reliant on space for their combat effectiveness and which are more or less capable of dealing with Soviet space denial efforts to avoid degradation in their combat capabilities?

General PIOTROWSKI. Well, Mr. Chairman, I believe that all the services are highly reliant on space systems today, and all will become even more reliant on space systems as we improve our space capability and the timeliness of information to the ultimate user—our fighting units. An example is, the Global Positioning System [GPS], of which we now have seven prototype satellites in orbit providing very accurate positioning information, during a limited period time of day. GPS will soon be operational providing extremely accurate location information on a continuous basis to our ships at sea, will feed our weapons systems for accurate targeting, will allow our aircraft to locate themselves very accurately in space for delivery of unguided weapons, or for reconnaissance purposes and certainly will allow our soldiers on land to be able to accurately position themselves within a universal grid framework. Using laser ranging devices to feed their GPS systems, these ground troops will be able to accurately locate a target and pass that information either to naval bombardment systems, carrier-launched aircraft, land-based aircraft or even Strategic Air Command conventionally armed aircraft departing the United States for targets at some great distance away.

It is accurate to report that all of our services are very, very reliant, and all of them use space-derived information to a great degree and will continue to do so to an increasingly greater degree as we robust and improve our space systems.

DANGER TO U.S. CARRIERS

Chairman STENNIS. Well, we took some testimony the other day about the possibility of two more carriers. Now, what is the chief danger to a carrier that we have at sea? What is the chief danger from the Soviets?

General PIOTROWSKI. Well, sir, I think it would be more appropriate for a naval officer to respond to the chief danger to a carrier. Perhaps I should defer that question to Admiral Hogg.

Chairman STENNIS. I am going to get to him with that same question, but what I wanted to get was a better understanding of the general situation that you are in. We have got to have more understanding and enlightenment on this as these dollars run into bigger and bigger and bigger amounts.

I would just like to know if you have some idea about a carrier. I mean, we do not have a carrier in this bill, but what are its vulnerabilities from the Soviets?

General PIOTROWSKI. Well, sir, again I would suggest perhaps the Chief of Naval Operations would be in the best position to answer that question. There are certainly a number of threats, underwater, surface and certainly in the atmosphere that a carrier faces. However, carriers and the carrier task group are designed to handle these threats. In this regard, I am not familiar with the defensive and counteroffensive systems the proposed carriers will be equipped with.

Chairman STENNIS. Well, I will ask him about it, too, but the Members here have to pass on these matters. We are not admirals, either, but we have to take the responsibility of spending or not spending the money.

General PIOTROWSKI. Well, Mr. Chairman, may I ask the Navy for a response to that and provide it for the record?

Chairman STENNIS. I will ask them in time, but we have to get at this thing better. It is not your fault, but the Appropriations Committee is just confronted every way we turn here. There are bags and bags and bags of money needed. I know it is needed to some extent. We have to try to make a judgment; not a guess, but a judgment based upon something of substance.

I asked a question about the vulnerability of the carriers. I notice when things get hot in trouble spots that they do appear, and then the next morning when you wake up a carrier got there overnight and things quiet down. I believe just the presence of a carrier out there ready for action, just the presence of it—I am talking about in foreign waters now—is a strikingly tremendous influence.

What I am trying to get at now is where is the money coming from to pay the bills, not just for this year. We will be going into programs here that will last for many years if we undertake them. We just have to get into these things from a practical standpoint as well as a professional standpoint. You do have professional thoughts and advice to us, and a very high percent of it is followed.

All right, do you have something further now, General?

General PIOTROWSKI. No, Mr. Chairman. I thank you for this opportunity.

ANTISUBMARINE WARFARE

Chairman STENNIS. Admiral, the Navy has stated that its No. 1 priority this year is antisubmarine warfare in light of recent Soviet improvements in that area.

Now, which particular space assets are being procured, developed or researched that contribute to increasing the Navy's ASW capabilities against the Soviets; in particular, how important is an increased Navy oceanography capability to improving its ASW combat effectiveness?

Would you comment on that, please?

Admiral HOGG. Yes, sir, Mr. Chairman. Space is very important to antisubmarine warfare in terms of indication and warning, cueing and targeting, and there are space systems today that contribute significantly to support ASW in those areas. I could go into further discussion of that in a closed session, sir.

In terms of oceanography, it is becoming more and more important for the Navy forces at sea to understand the changing environmental conditions, the water conditions, the surface temperatures, so that we can more quickly predict the flow of the currents and eddies so that we can then understand best how to position our forces, our Sonobuoys, our submarines to intercept potential adversaries or to move around them as we choose.

Chairman STENNIS. Was there any other point that you wanted to make on that? To me, the value of hearings is to get the opinion of you gentlemen who have special knowledge in these fields. You have a special responsibility to fill, too, so you do not have to hold back except points for security reasons which you have already referred to.

Did you have a statement you wish to put in the record, Admiral.

Admiral HOGG. Yes, sir, Mr. Chairman. I do have a statement for the record.

Chairman STENNIS. We will put it in the record as testimony. Read any of it you wish now. We do have time. No one is going to be cut off.

NAVAL WARFARE

STATEMENT OF VICE ADM. JAMES R. HOGG, USN, DIRECTOR, NAVAL WARFARE

NAVY SPACE PROGRAMS

Admiral Hogg. Thank you very much. I would like to expand on my statement for the record because the Navy has given considerable thought to ways to enhance programs in space that would yield the highest warfighting payoff.

First and foremost, we do recognize that space systems provide the critical tactical warfighting enhancements that our naval forces at sea need to be effective in this increasingly tough military environment that we face as the Soviet capabilities increase.

Last year we conducted a space appraisal by the Director of Naval Warfare which reviewed all aspects of our Navy space participation and identified minimum essential programs. It focused on keeping important programs on track and funded, and these included our terminals for the important global positioning system that General Piotrowski has discussed; support for the EHF and SHF satellite communication systems; the terminal support we need for MILSTAR, which is in the EHF communication band; and purchase of fleet imagery support terminals which provide target planners on board our aircraft carriers and our other major command ships with necessary near real time photography of targets and the surrounding areas for the targets.

This year's space appraisal is under review today by the Chief of Naval Operations. It confirms last year's appraisal, and, more significantly, I believe it underscores the necessity for survivability of space systems; so that the tactical information they provide will be available in wartime. That is very important for us.

In addition to our warfare appraisal, the CNO this year had a panel of civilian experts review space applications for the Navy. That panel made recommendations to the CNO for means to improve our warfighting efforts through space systems. In the main, the panel agrees with the space appraisal.

It is certainly clear from both the space appraisal and the outside panel review that additional investment will be needed by the Navy, and there is support in the Navy for an increase in resource allocations for space programs because we recognize their warfighting value.

Looking to the future, naval operations, of course, are global in nature by virtue of our missions. That, combined with the inherent flexibility and mobility of naval forces at sea make the Navy a major user of space systems today. We see space as the natural medium to support our operating forces.

To that end, the Navy's use of information from space can only increase, and it will continue to be operationally oriented, oriented to meet tactical warfighting performance at sea worldwide and in particular in forward areas such as the Northwest Pacific and the Northeast Atlantic.

To be more specific, functional areas of enhancement will include several aspects of command control and communications, initial warnings and indications, surveillance, and targeting in a number of essential categories, navigation, and, as we have already discussed, the need for environmental data.

In fact, when we consider our warfare mission areas, space systems will support them all. That is a partial answer, to your question to General Piotrowski. Probably the strongest beneficiaries in terms of mission areas will be antisubmarine warfare and anti-air warfare because of indications and warning, surveillance and cueing or targeting. That is where the real warfighting payoff comes.

In summary, the Navy recognizes space systems as absolutely essential to our warfighting capabilities. The Navy recognizes that we must vitalize space even more in working with the Air Force and other services with two critical interests: first, that tactical information from space be provided to our forces at sea in near real time tailored to meet those fleet operators' needs; and second, that this information be survivable.

Thank you, sir.

[The prepared statement of Admiral Hogg follows:]

PREPARED STATEMENT OF VADM JAMES R. HOGG
DIRECTOR
NAVAL WARFARE

Mr. Chairman and Members of the Committee:

It is my pleasure to appear before you today with the Secretary of the Air Force and the Commander in Chief U.S. Space Command to discuss our progress in the Navy Space Program.

The introduction of the submarine in World War I and the introduction of Naval Aviation in World War II changed the course and future of Naval Warfare forever. These new dimensions in war-at-sea required the development of flexible and responsive naval capabilities, both offensive and defensive, to achieve victory. Likewise, the introduction of Space Systems is significantly altering the current nature of Naval Warfare. Wargames, fleet exercises and real world contingencies have all highlighted the importance of space systems. Our dispersed tactical formations and electronic emissions policies are partially in reaction to space based systems. Our ability to communicate from these space-driven formations is also provided by space based systems.

Last year my office did a space baseline area appraisal in order to conduct a comprehensive review of the Navy Space Program. This appraisal revealed the criticality of space systems to the Navy - today and in the future. We are currently completing our second space appraisal, which underscored the necessity for survivability of our space system information.

A substantial investment in personnel and funding resources is required to develop and implement a strong Naval Space Program - one which can respond to the expanding multi-dimensional Soviet threat. This investment will provide an effective deterrent and a credible naval warfighting capability now, and continuing into the next century.

The Navy interest in space recognizes that the global characteristics of space match well with the Navy's global missions. The Navy is a dominant tactical user of space systems and the information received from space systems. Today space systems have become invaluable for the violent peace operations in forward areas which have historically been the Navy's role. We recognize that the use and control - both tactical and strategic - of space will be absolutely critical in any future naval conflict, whether regional or with the Soviets.

The Navy's operations use of space systems continues to be tactically oriented to meet warfighting requirements at sea in the areas of command, control and communciations (C^3), surveillance in many catagories, navigation, and environmental data.

We currently rely heavily on our space C^3 assets - our UHF Fleet Satellite Communications System, UHF Leased Satellites and SHF Defense Satellite Communication system. The UHF follow on satellite program will continue our UHF System capability into the future, while the new Milstar EHF System already mentioned, will add significantly to our jam-resistent capabilities once on line. We are continuing to fund the satellite laser communciations system, however, difficult engineering questions remain to be answered before a comparison can be made between potential operations benefit versus affordability. We are committed to a funding program which will enable us to do that.

Naval operations are global in scope. Our emphasis is on deterrence and forward offensive operations if deterrence fails. The Navy's near-term wide area surveillance programs, both terrestrial and space based, are relocatable over the horizon radar and national and Air Force Space Systems. This space surveillance is fundamental to our ability to monitor for indications and warnings of hostile intent and movement of adversaries, so that we may alert, posture and position our forces at sea. As we improve their timeliness, these indications and warnings serve to expand our battle space. I speak here of battle space as the period of time we have to destroy an enemy's missile launch platforms, such as long range bombers or submarines, before they reach their weapons release range. This is essential to our maintenance of air, surface, and subsurface superiority. And, we need this superiority to ensure the ability to put a strike force in position to project power against an enemy both at sea and ashore. Conversely, we need to reduce the enemy's battle space by degrading his sensor performance and command links by Command, Control and Communications Counter Measures (C^3CM). There are some things we can do on earth, but some will have to be done in space. These efforts will preclude an enemy from the ability to complicate our defense problem by massing his attack.

The worldwide, continuous, highly precise positioning, velocity, and timing navigational data of the global positioning system will serve as a significant force enhancer throughout the spectrum of naval warfare mission areas. The ability to determine position in common military grid reference system coordinates or geodetic coordinates will eliminate existing cumbersome relative navigation constraints. In particular, GPS positioning will enable over the horizon weapons platforms to immediately realize far greater tactical effectiveness than presently exists.

Anticipated GPS constellation availability meshes with the Navy's GPS receiver installation schedule, which commences in the fourth quarter FY-89 and continues through FY-02. The Navy intends to integrate each GPS receiver installation with onboard C^3 systems for every ship, and aircraft weapons platform. This will ensure that precise position, velocity, and timing data is continuously available to C^3 systems in order to more effectively engage the enemy - either as individual units or as an integrated battle force. Further, integration with onboard inertial navigation systems virtually eliminates potential detrimental effects of temporary limited satellite coverage or receiver jamming.

To carry out operations in forward areas with the explicit intention of locating and countering the enemy's forces, naval forces need a real-time "picture" of the atmospheric conditions which could effect the outcome of these operations. The Navy's participation in the Defense Meterological Satellite Program (DMSP) ensures that Navy and Marine Corps tactical meterological data requirements are considered during the acquisition and operation phases of DMSP satellites. We are currently reviewing our oceanographic data requirements and assessing potential contributions to naval warfighting capability by both the Navy remote ocean sensing system satellite and future DMSP satellites.

In summary, the Navy needs space systems and has devoted considerable resources to exploit the capabilities offered by space. We also believe that the Navy must make even greater efforts in space; we are closely monitoring the Defense Advanced Research Projects Agency's (DARPA) advanced satellite technology research and development initiative which is studying a lightweight and inexpensive multi-purpose satellite and booster combination. We are currently reviewing all aspects of our programs to better optimize available and planned space systems.

The Navy has two critical interests in space. We want to be sure that tactical information vital to our combat capabilities is provided in near real time to our operational forces at sea, and we want this information to be survivable. Thank you.

Chairman STENNIS. Thank you very much.

Do you have something further to say, General, or anything before we close? Do you have something further?

General PIOTROWSKI. No, Mr. Chairman.

Chairman STENNIS. What about you, Mr. Secretary?

Mr. ALDRIDGE. No, Mr. Chairman. I have said all I needed to.

NROSS SATELLITE

Chairman STENNIS. Well, back to you a minute, Admiral. You have said that it is becoming more and more important for the Navy ASW success to have improved oceanographic information.

Now, would you agree, then, that the NROSS satellite makes an important contribution to improving the Navy's oceanographic capability?

Admiral HOGG. Yes, sir, I would. The information that NROSS would provide would be a major improvement to the Navy's effectiveness in antisubmarine warfare. The Navy's difficulty with NROSS over these past several months has been an affordability issue. It has never been a warfighting issue. We have always recognized the value of the data that it would provide.

Chairman STENNIS. Well, there are a great many major parts of the military program that I am not familiar with except just on the surface, but some years ago, down in Puerto Rico, they showed me something with reference to oceanography and oceanographic capabilities. Some of those capabilities were being neglected for a lack of attention from Congress.

Well, anyway, I got interested in it and got concerned about it at the same time. I went back years later, and they showed me what they had been able to do. To me, it was just amazing how far they had gone. It did not take a great amount of money, but it took some emphasis and special effort.

Really, that is the prompting of my inquiry. I am very glad to hear your answer.

Now, gentlemen, I have already referred to the importance of your testimony. I consider it highly valuable. It makes a person feel fine to know that we have such capabilities as you gentlemen represent.

Is there anything further now that you want to say, Mr. Secretary?

Mr. ALDRIDGE. No, sir, nothing more.

Chairman STENNIS. Well, I think if you have anything later that you want to add to what has been said, you can do it, of course.

General, do you have anything else you would like to say now or add later, either?

General PIOTROWSKI. Thank you, Mr. Chairman. Nothing at this time.

Chairman STENNIS. What about you, Admiral?

Admiral HOGG. Mr. Chairman, I appreciate this opportunity to come before the committee and talk about the Navy's needs in space. They are critically important to our warfighting. We look upon them as a means to enhance our tactical warfighting at sea, and they serve that very well, sir. I am sure they will in the future.

Thank you, sir.

SUBMITTED QUESTIONS

Chairman STENNIS. All right. The following Senators have questions they want to submit to be answered for the record, Senator Garn, Senator Robert Byrd, and Senator Stevens.

Without objection, that will be so ordered.

[The following questions were not asked at the hearing, but were submitted to the Department for response subsequent to the hearing:]

QUESTIONS SUBMITTED BY CHAIRMAN STENNIS

DOD SPACE BUDGET

QUESTION: Please describe the major components of the annual DOD space budget, along with the total dollars and percentage allocation to each at five points in time FY 79, 84, 88, 92, "To Complete"; i.e.--satellites, launchers, ground facilities, long term technology R&D (NASP, HLLV, etc.), etc. Please list programs for launchers, satellites, and ground operations, providing FYDP cost by year and total program costs (i.e., Titan IV, Delta II, Titan II, Adv. Upper Stage, Advanced Launch System, NASP, DSCS, MILSTAR, DMSP, DSP, BSTS, GPS, major new launch pads or ground control facilities) in both then-year and constant (FY 88) dollars.

ANSWER: Use of the term "Space Budget," although widespread, can be misleading. DOD does not specifically budget for space activities. The DOD budget process allocates funds to programs in support of defense work performed in the various mission areas. Also, the definition of space and space related activities changes from year to year. For example, the activation of HQ SPACECOM added a new program to the list. Conversely, Air Force participation in Shuttle development ended in FY 86. To develop the "bottom line" for each fiscal year, percentages "factors" are assigned to those programs identified as having some relation to space. These percentages range from 100% for programs like GPS, to 14% for EC-135 Class V modifications. The program totals are then summed in eight categorizes to develop the Air Force "Space and space-related programs" total for each fiscal year.

The space and space-related programs are divided into the following categories:
Navigation - Specifically, the GPS User Equipment and Space/Ground Segment make up this category, and the category totals approximately $350 million in the FY88 PB.
Communication - This category is comprised of such programs as Milstar, DSCS as well as aircraft modification programs like PACCS/WWABNCP EC-135 and NECAP Class V mods. The category totals approximately $900 million in the FY 88 PB.
TW/AA - This category is comprised of such programs as [deleted]. NCMC - TW/AA, BMEWS, and NDS, and it totals approximately $870 million in the FY 88 PB.
Weather - Specifically, this category is the DMSP program, which totals approximately $220 million in the FY 88 PB.
Launch - Space Shuttle, Space Boosters and Space Shuttle Operations comprise this category, which totals approximately $1630 million in the FY 88 PB.
Ground - This category includes CSOC, ESMC, WSMC, SPACETRACK, SCF as well as funding for HQ AF Space Command. It totals approximately $1180 million in the FY 88 PB.
Science and Technology - This category supports research and development efforts such as Rocket Propulsion, Aerospace Biotechnology, Adv Spacecraft Technology, Space Test Program,

National Aerospace Plane and others. It totals approximately $450 million in the FY 88 PB.

Support and Intelligence - Programs such as Lincoln Laboratory, NCMC - Space Defense Systems, Development Planning, Professional Military Education, TENCAP, Forest Green, GDIP and Special Activities are included under this category, which totals approximately $590 million in the FY 88 PB.

In summary, the funding associated with Air Force space and space related efforts for FY 88 is approximately $12.08 billion. A program-by-program listing from FY 79 through FY 92 is attached. Note that individual programs specified in this Congressional question are addressed as follows:

- PE 35119F includes Titan IV, Delta II, Titan II, Advanced Launch System
- PE 35171F includes the Advanced Upper Stage

[Deleted].

- New launch pads or ground control facilities are included in the "ground" category on the attached.
- The remaining individually specified programs have individual PE's as shown in the attached.

(The program-by-program listing from FY 79 through FY 92 is classified and will be retained in subcommittee files.)

CHANGES FROM FY 1987 PROJECTIONS

QUESTION: In the presentation of the FY 88/89 budget request, what major changes from FY 87 projections have occurred and what are the reasons for these changes? Please describe any major changes for each service and provide the reasons for such changes.

ANSWER: We are providing information from the FY 88/89 descriptive summaries for our major space and space-related efforts. It describes in detail not only this year's planned efforts, but also changes from our FY 87 projections.

Program Element(PE): 63368F, Title: Air Defense Initiative (ADI) Battle Management Technology, DOD Mission Area: 122-Strategic Air Defense, Budget Activity: 3-Strategic Programs.

RDT&E RESOURCES (PROJECT LISTING): ($ in thousands)

Project Number & Title	FY86 Actual	FY87 Est	FY88 Est	FY89 Est	Add'l to Comp	Tot Est Cost
TOTAL FOR PE	0	604	17,139	35,820	Cont	N/A
3379 Concept Def.	0	0	1,000	1,420	Cont	N/A
3380 Bat'l Mgt/Comm and Control (C^2) Technlgy	0	604	9,139	24,500	Cont	N/A
3633 Intergration Analysis*	0	0	7,000	9,900	Cont	N/A

*Proj 3633 is a new proj number & title for effort transitioning from proj 2955, PE 63716F, Atmospheric Surveillance Technology.

COMPARISON WITH FY 1987 DISCRIPTIVE SUMMARY:

RDT&E	0	2,500	10,000	N/A	Cont	N/A

PE 63369F, Title: Air Defense Initiative (ADI) Engagement Technlgy, DOD Mission Area: 122 - Strategic Air Defense, Budget Activity: 3 - Strategic Programs.

RDT&E RESOURCES (PROJECT LISTING):

Project Number	Title	FY86 Actual	FY87 Est	FY88 Est	FY89 Est	Add'l Compl	Tot Est Cost
TOTAL	FOR PE	0	508	13,222	35,035	Cont	N/A
3381	Concept Analysis	0	0	3,000	3,000	Cont	N/A
3382	Intercept Vehicle Tech	0	108	4,222	10,900	Cont	N/A
3383	Missile Seeker Tech	0	400	6,000	21,135	Cont	N/A
(U) COMPARISON WITH FY 1987 DISCRIPTIVE SUMMARY:							
RDT&E		0	2,100	13,500	N/A	Cont	N/A

PE 63738F, Title: Air Defense Initiative (ADI) - Surveillance Tech, DOD Mission Area: 122 - Strategic Air Defense Budget Activity: 3 - Strategic Programs.

RDT&E RESOURCES (PROJECT LISTING):

Project Number	Title	FY86 Actual	FY87 Est	FY88 Est	FY89 Est	Add'l Compl	Tot Est Cost
TOTAL	FOR PE	0	0	85,679	138,900	Cont	N/A

Project Number	Title	FY86 Actual	FY87 Est	FY88 Est	FY89 Est	Add'l Compl	Tot Est Cost
3640	Gnd/Air Bsd Surv Tech*	0	0	59,054	108,266	Cont	N/A
3641	Space Bsd Surv Tech**	0	0	25,625	26,834	Cont	N/A
3010	Teal Ruby Miss Plng***	0	0	1,000	3,000	Cont	N/A

* Proj 3640 is a new proj# & title for effort transitioning from proj 2956, PE 63716, Atmos Survlnc Technlgy. ** Proj 3641 is a new proj# & title for effort transitioning fm proj 2123, PE 63424F, Crus Msl Survlnc Technlgy. *** Proj 3010 funds were in PE 63424F. COMPARISON WITH FY 1987 DESCRIPTIVE SUMMARY: There was no Descriptive Summary for this PE in FY 1987 as it is a new program element. The following table shows the project funding as shown in the FY 87 Descriptive Summaries of their former program elements:

Project #	Title	FY86Actl	FY87Est	FY88Est	FY98Est	Add'l	TotEstCst
2956	Tech Dev & Demo - PE 63716F	4,278	27,712	27,704	N/A	Cont	N/A
2123	Crus Msl Survlnc Tech - PE 63424F	3,655	12,850	25,625	N/A	Cont	N/A
Teal Ruby	Mission Planning - PE 63424F	7,600	4,000	1,000	N/A	0	33,392

EXPLANATION: Proj 2956 FY88 transition to proj 3640 & funding increase reflects DoD decision to pursue development & test of the airborne phased-array radar for an early 1990's FSD decision. Proj 3010 changes due to delays in Shuttle pgm and decision to delay the Teal Ruby launch until the 1990's.

PE 63716F, Title: Atmospheric Surveillance Technology (AST), DOD Mission Area; 122 - Strategic Air Defense, Budget Activity: 3 - Strategic Programs.

RDT&E RESOURCES (PROJECT LISTING):

Proj# Title	FY86Actl	FY87Est	FY88Est	FY89Est	Add'l	TotEstCst
Tot for PE	8,284	14,137	8,695	1,604	0	37,559
2955 Archtr Dev	284	1.137	0*	0	0	2.002
2956 Techlgy Dev & Demonstration	8,000	13,000	8,695**	1,604**	0	35,557

* Work moved to proj 3633 of PE 63368F Air Defense Initiative (ADI) Battle Mgmt Technlgy. ** Work being phased over to proj 3640 of PE 63738F, ADI Survlnc Techlgy.

COMPARISION WITH FY87 DESCRIPTIVE SUMMARY:

RDT&E	4,851	32,024	30,064	N/A	Cont	N/A

EXPLANATION: FY 86 funds added for Low Cost Alternate to the Airborne Warning & Control System (AWACS) study. Congress did not appropriate the funds requested in FY 87. The work started in this PE transition into PE 63768F, ADI Survlnc Technlgy, & 63368F, ADI Battle Mgmt Technlgy, in FY 88 & 89 phasing out this PE.

PE: 12423F, Title: Ballistic Missile Early Wrng System (BMEWS), DOD Mission Area: 332 - Strategic Surveillance and Air Defense, Budget Activity: 3 - Strategic Pgms.

RDT&E RESOURCES (PROJECT LISTING):

Project Number	Title	FY86 Actual	FY87 Est	FY88 Est	FY89 Est	Add'l Compl	TotEst Cost
TOTAL FOR PE		8,707	15,385	19,247	27,007	Cont	N/A

COMPARISON WITH FY 1987 DESCRIPTIVE SUMMARY:

RDT&E	12,636	16,22	22,746	N/A	Cont	N/A
Other Procurement*	80,498	52,636	8,435	N/A	Cont	N/A

The differences in funding levels reflect Gramm-Rudman-Hollings sequestration, and higher priority needs. * Includes Spares.

PE: 12313F, Title: Ballistic Misile Tactical Wrng/Attack (TW/AA), DOD Mission Area: 332 - Strategic Surveillance and Warning, Budget Activity: 3 - Strategic Programs.

RDT&E RESOURCES (PROJECT LISTING):

Project Number	Title	FY86 Actual	FY87 Est	FY88 Est	FY89 Est	Add'l Compl	TotEst Cost
TOTAL FOR PE		1,965	2,874	2,265	2,536	Cont	N/A

COMPARISON WITH FY 1987 DESCRIPTIVE SUMMARY:

RDT&E	2,100	3,084	2,878	N/A	Cont	N/A

PE:12436F, Title:Command Center Processing and Display Sys(CCPDS), DOD Mission Area: 391 - Strategic Information System, Budget Activity: 3 - Strategic Programs.

RDT&E RESOURCES (PROJECT LISTING):

Project Number	Title	FY86 Actual	FY87 Est	FY88 Est	FY89 Est	Add'l Compl	TotEst Cost
TOTAL FOR PE		12,576	25,699	32,052	38,064	Cont	N/A

(U) COMPARISON WITH FY 1987 DESCRIPTIVE SUMMARY:

RDT&T	14,430	27,027	24,789	N/A	Cont	N/A
Other Procurement	2,552	2,110	29,360	N/A	Cont	N/A

EXPLANATION: FY 86 is lower than planned due to the delay in CCPDS-R FSD/Production contract award caused by addition of AWPDS requirements in the RFP. This delay and the additional requirements have also increased FY 88 RDT&E budgetary requirements to keep the program IOC on schedule. FY 88 Other Procurement funds were moved to FY 89 to match the current program schedule.

PE: 12431F, Title: Defense Support Program (DSP), DOD Mission Area: [Deleted] Budget Activity: 3 - Strategic Pgms.

RDT&E RESOURCES (PROJECT LISTING):

Project Number	Title	FY86 Actual	FY87 Est	FY88 Est	FY89 Est	Add'l Compl	TotEst Cost
TOT FOR PE		65,038	113,022	103,807	95,214	Cont	N/A
3624	DSP	65,038	113,022	103,807	72,820	Cont	N/A
3625	DSP Follow-on				22,394	Cont	N/A

COMPARISON WITH FY 1987 DESCRIPTIVE SUMMARY:

RDT&E	77,540	138,178	95,429	N/A	Cont	N/A
MIS'L PROCURMNT	124,082	358,515	445,558	N/A	Cont	N/A
OTHER PROCUREMENT	138,649	141,312	67,356	N/A	Cont	N/A

EXPLANATION: FY 86 RDT&E decrease of $12.502 Million (M) due to several Congressional reductions. FY87 RDT&E decrease of $25.156M due to serveral Congressional reductions. FY88 RDT&E increase of $8.378M due to rephasing of the launch program. FY 86 Missile Procurement (MPAF) decrease of $6.861M due to Gramm-Rudman and general Congressional reduction. FY 87 MPAF decrease of $80.378M due to several Congressional reductions. FY 88 MPAF decrease of $53.715M due restructuring of satellite buy and directed reductions related to inflation, profit policy and contract support. FY 87 Other Procurement decrease of $43.493M due to Congressional reduction and reduced spares. FY 88 Other Procurement decrease of $45.504M due to deferral of Mobile Communication Terminal Upgrade and reduced spares.

PE: 12412F, Title: Distant Early Warning (DEW) Radar Stations, DOD Mission Area: 332 - Strategic Surveillance and Warning, Budget Activity: 3 - Strategic Programs

RDT&E RESOURCES (PROJECT LISTING):

Project Number Title	FY86 Actual	FY87 Est	FY88 Est	FY89 Est	Add'l Compl	Tot Est Cost
TOT FOR PE	35,603	13,121	8,477	0	5,767	137,047
2710 North Warning	35,603	13,121	8,477	0	5,676	137,047

COMPARISON WITH FY 1987 DISCRIPTIVE SUMMARY:

RDT&E	39,871	14,430	6,744	N/A	2,869	138,451
OTHER PROCURMENT	11,335	4,318	5,038	N/A	481,418	619,606

EXPLANATION: The FY 86 RDT&E reflects adjustments due to Gramm-Rudman-Hollings (GRH) and revised inflation indices. FY 88 increase reflects funds added to cover a Life-Cycle-Cost Incentive clause in the short range radar (SRR) full-scale development contract. Other Procurement changes in FY 86 and FY 87 result from spares adjustments, and the FY 88 change results from direction by the OSD.

Program Element(PE): 12325F, Title: Joint Surveillance Sys (JSS), DOD Mission Area: 112 - Strategic Air Defense, Budget Activity: 3 - Strategic Programs

(U) RDT&E RESOURCES (PROJECT LISTING): ($ in thousands)

Project Number Title	FY86 Actual	FY87 Est	FY88 Est	FY89 Est	Add'l Compl	Tot Est Cost
TOT FOR PE	136,372	3,267	2,156	1,754	Cont	N/A
2976 Atm Tact Wrn Conn	398	2,282	1,210	901	2,067	6,858
2996 FAA/AF Radar	974	985	946	853	Cont	N/A

(U) COMPARISON WITH FY 1987 DESCRIPTIVE SUMMARY: ($ in thousands)

RDT&E	2,017	3,509	2,279	1,883	Cont	N/A
Other Procurement	3,567	31,568	48,687	N/A	Cont	N/A

EXPLANATION: (U) Differences in FY1986 RDT&E are a result of Gramm-Rudman redutions and adjustments made for FY 1986 actual obligations/expenditures. Differences in FY 1987 Other Prcment are a result of Congrnl reduction of one FARR Radar and undstrbtd adjmnts for Other Base Maint and Suprt. Differences in FY 88 Other Procurement are a result of additions for ROTH-C ROCC connectivity, Dispersal Comm and Alaskan Air Command North Slope Radar which were offset by reduction of one additional FARR radar as well as undistributed adjustments for comm/electronics, spares inflation and contractor profit.

PE: 12417F, Title: Over-the-Horizon Backscatter (OTH-B) Radar, DOD Mission Area: 332 - Strategic Surveillance & Warning, Budget Activity: 3 - Strategic Programs.

RDT&E RESOURCES (PROJECT LISTING):

Project Number	Title	FY86 Actual	FY87 Est	FY88 Est	FY89 Est	Add'l Compl	Tot Est Cost
TOT FOR PE		9,358	31,696	38,396	19,218	90,646	479,402
COMPARISON WITH FY 1987 DESCRIPTIVE SUMMARY:							
RDT&E		65,738	33,877	46,525	N/A	65,878	636,688
Other Procurement		189,777	200,051	280,726	N/A	986,203	1,885,657

EXPLANATION: Congress appropriated procurement funds for only one sector in FY 87 vice two requested. The stretchout of the program has resulted in incresed costs for program office support and sector acquisition. The later availability of sectors for testing results of pre-planned product improvements impacts RDT&E costs.

PE: 12311F, Title: NCMC - Space Defense Systems, DOD Mission Area: 391 - Strategic Information Systems, Budget Activity: 3 - Strat Pgms

RDT&E RESOURCES (PROJECT LISTING):

Project Number	Title	FY86 Actual	FY87 Est	FY88 Est	FY89 Est	Add'l Compl	Tot Est Cost
TOT FOR PE		52,654	39,125	26,371	24,004	Cont	N/A
COMPARISON WITH FY 1987 DESCRIPTIVE SUMMARY:							
RDT&E		56,518	41,284	23,974	N/A	Cont	N/A
Other Procurement		41,883	49,692	17,790	N/A	Cont	N/A

EXPLANATION: FY 86 actuals were lower than expected due to delay in contract award. A request for $15M FY 87 Congressional reprogramming authorization has been submitted and the FY 87 estimate in above reflects approval. The FY 88 RDT&E estimate is now based on negotiated contracts. The FY 87 & 88 Other Procurement budget previously included all NCMC programs. The current budget reflects only this PE.

PE: 12310F, Title: NCMC - Tactical Warning/Attack Assesement (TW/AA) Systems, DOD Mission Area: 391, - Strategic Information System, Budget Activity: 3 - Strategic Programs.

RDT&E RESOURCES (PROJECT LISTING):

Project Number	Title	FY86 Actual	FY87 Est	FY88 Est	FY89 Est	Add'l Compl	Tot Est Cost
TOT FOR PE		38,978	31,217	57,849	52,582	Cont	N/A
COMPARISON WITH FY 87 DESCRIPTIVE SUMMARY:							
RDT&E		51,108	32,935	72,527	N/A	Cont	N/A
Other Procurement		17,127	2,285	12,858	N/A	Cont	N/A

EXPLANATION: RDT&E and Other Procurement funds reflect a restructure of the Communications Systems Segment Replacement program due delays in FSD contract award and low prior year obligation rates.

PE: 12432F, Title: Sea Launched Ballistic Msl (SLBM) Radar Wrng Sys, DOD Mission Area: 332 - Strategic Surveillance & Warning, Budget Activity: 3 - Strategic Programs.

RDT&E RESOURCES (PROJECT LISTING):

Project Number	Title	FY86 Actual	FY87 Est	FY88 Est	FY89 Est	Add'l Compl	Tot Est Cost
TOT FOR PE		6,980	18,059	20,313	10,175	Cont	N/A
COMPARISON WITH FY 87 DESCRIPTIVE SUMMARY:							
RDT&E		8,025	19,752	20,728	N/A	Cont	N/A
Other Procurement*		13,948	126,366	3,778	N/A	Cont	N/A

EXPLANATION: FY 87 due to Congressional action. *Includes spares.

PE: 63438, Title: Sat Systems Survivability, DOD Mission Area: 410 - Space Launch & Orbital Support, Budget Activity: 6 - Defense-Wide Mission Support.

RDT&E RESOURCES (PROJECT LISTING):

Project Number	Title	FY86 Actual	FY87 Est	FY88 Est	FY89 Est	Add'l Compl	Tot Est Cost
TOT FOR PE		3,840	1,933	3,277	3,787	Cont	N/A
2611	Survblty Plng and Analysis	500	50	200	200	Cont	N/A
2612	Sat Survblty	3,340	1,883	2,977	3,487	Cont	N/A
2613	Grnd Stat/Link	0	0	100	100	Cont	N/A
	Survblty	0	0	100	100	Cont	N/A

COMPARISON WITH FY 87 DESCRIPTIVE SUMMARY:

RDT&E	4,164	5,405	11,677	N/A	Cont	N/A

EXPLANATION: Reduction in FY 87 is due to Congressional action. Decrease in FY 88 is due to reallocation by the Air Force to higher priority programs.

PE: 12424F, Title: SPACETRACK, DOD Mission Area: 332 Strategic Surveillance and Warning, Budget Activity: 3 - Strategic Pgms.

RDT&E RESOURCES (PROJECT LISTING):

Project Number	Title	FY86 Actual	FY87 Est	FY88 Est	FY89 Est	Add'l Compl	Tot Est Cost
TOT FOR PE		8,456	14,385	9,630	10,966	Cont	N/A
2295	Ground-Based Electro-Optical Deep Space Survlnc (GEODSS) System	3,471	4,061	1,300	1,400	Cont	N/A
2296	Ground-Based Sensors	4,985	10,324	4,430	4,666	Cont	N/A
3202	Air Force Maui Optical Station	*	*	3,900	4,900	Cont	N/A

* Funding for this proj is in proj 2296 until FY 88.

COMPARISON WITH FY 87 DESCRIPTIVE SUMMARY:

RDT&E	9,368	16,461	14,264	N/A	Cont	N/A
Other Procurement	14,650	5,200	0	N/A	Cont	N/A

EXPLANATION: RDT&E reductions were caused by a need to fund higher priority operations and maintenance tasks.

PE: 64406F, Title: Space Defnese Systems, DOD Mission Area: 123 - Space Defense, Budget Activity: 3 - Strategic Programs

RDT&E RESOURCES (PROJECT LISTING):

Project Number	Title	FY86 Actual	FY87 Est	FY88 Est	FY89 Est	Add'l Compl	Tot Est Cost
TOT FOR PE		143,597	189,285	402,358	385,812	Cont	N/A
2134	Mntr System	143,597	172,985	277,958	248,092	Cont	N/A
2135	Adv Systems*			77,750	88,880	Cont	N/A
3647	Grd Bsd Lsr Tech*		16,300	46,650	48,840	Cont	N/A

* The Advanced Systems Project was reinstated and the Ground Based Laser Technology was added as part of a major Program restructure conducted during the fall of CY 86. Project 3647 will be transferred to PE 63605F, Adv Radiation Technlgy, at the 1st opportunity.

COMPARiSON WITH FY 1987 DESCRIPTIVE SUMMARY:

RDT&E	199,500	277,957	226,217	N/A	Cont	N/A
Aircraft Prcmnt	0	0	4,700	N/A	Cont	N/A
Missile Procmnt	0	28,481	332,664	N/A	Cont	N/A
Other Prcrmnt	0	2,000	12, 997	N/A	0	16,524

EXPLANATION: (U) In FY 86, the $199,500, reflected in the FY 87 Dscrtve Summ, assumed a reprogramming action which did not occur.

In FY 87, Congress reduced our RDT&E request by $78 million and deleted all prcrmt fndng. Congress also reimposed the moratorium prohibiting testing against objects in space and restricted the implementation of the Production Verification effort. Due to these actions, a major program reevaluation was conducted. The above changes reflect a restructured program which is described further in the Descriptive Summary.

PE: 12411F, Title: Surveillance Radar Station/ Sites, DOD Mission Area: 332 - Strategic Surveillance Warning Budget Activity: 3 - Strategic Programs.
RDT&E RESOURCES (PROJECT LISTING):

Project Number	Title	FY86 Actual	FY87 Est	FY88 Est	FY89 Est	Add'l Compl	Tot Est Cost
TOT FOR PE		12,345	20,118	5,224	1,671	Cont	N/A
2980	North Atlantic Def Sys (NADS)	4,490	6,636	4.346	832	Cont	N/A
3137	POTEEN	4,146	12,599	0	0	0	16,745
3159	Crbbn Rdr Sys	3,709	883	878	839	2,818	9,122
N/A	Drug Interdiction Aerostat Radars	0	0	0	0	0	0

COMPARISON WITH FY 1987 DESCRIPTIVE SUMMARY:

	FY86 Actual	FY87 Est	FY88 Est	FY89 Est	Add'l Compl	Tot Est Cost
RDT&E	19,700	25,004	15,527	N/A	183,773	251,173
Other Prcrmnt	34,060	44,174	53,627	N/A	146,676	305,772

EXPLANATION: (U) RDT&E deltas result from direction of the Office of the Sec'y of Defense to reduce POTEEN to a FY 1987 project to examine alternate solutions to surveillance in the North Atlantic. Other Prcrmt. Dif results from FY 87 Cong. funding for aerostat rdrs for the US Customs Service for drug interdiction, and a spares adjmnt. in FY 86-89. All years reflect inflation adjmnt.

PE: 35130F, Title: Consolidated Space Operations Center (CSOC), DOD Mission Area: 410 - Space Launch and Orbital Support, Budjet Activity: 6 - Defense- Wide Mision Support
RDT&E RESOURCES (PROJECT LISTING):

Project Number	Title	FY86 Actual	FY87 Est	FY88 Est	FY89 Est	Add'l Compl	Tot Est Cost
TOT FOR PE		79,732	71,173	50,020	39,126	69,613	485,955

COMPARISON WITH FY 1987 DESCRIPTIVE SUMMARY:

RDT&E	85,187	93,664	66,649	N/A	120,498	542,686
Other Procurement	23,865	85,542	28,930	N/A	39,124	408,381

EXPLANATION: RDT&E: FY 86 funding decrease (-$5.455M)reflects primarilly GRH reductions. FY 87 decrease (-$22.491M) reflects FY87 Congressional reductions. Funding changes in FY 88 reflect deletion of funds for continued Shuttle Operations and Planning Complex (SOPC) development. Other Procurement: FY 86 - 88 funding changes resulted from GRH reductions, pricing updates, projected actual repricings, FY 87 Congressional reductions (-$8.315M), , spares adjustments and deletion of SOPC funding. The SECDEF and SECAF have confirmed the decision to terminate SOPC development.

PE: 35160F, Title: Defense Meteorological Satellite Program (DMSP) DOD Mission Area: 410 - Space Launch and Orbital Support, Budget Activity: 6 - Defense-Wide Mission Support

RDT&E RESOURCES (PROJECT LISTING):

Project Number	Title	FY86 Actual	FY87 Est	FY88 Est	FY89 Est	Add'l Compl	Tot Est Cost
TOT FOR PE		51,276	61,169	56,181	68,539	Cont	N/A
COMPARISON WITH FY 1987 DESCRIPTIVE SUMMARY:							
RDT&E		54,874	63,772	60,532	N/A	Cont	N/A
Msl Procurement		40,979	19,427	89,625	N/A	Cont	N/A
Other Procurement		14,469	6,638	11,561	N/A	Cont	N/A

EXPLANATION: RDT&E funds are reduced in FY 86 by GRD reductions, in FY 87 by general RDT&E reductions and in FY 88 due to higher Air Force priorities. Missile procurement funds were reduced in FY 1986 by Gramm-Rudman-Hollings reductions, and higher Air Force priorities, and in FY 1987 by general reductions and were increased in FY 88 to initiate a multi-year procurement of primary sensors similar to that done in FY 83 & 85. Other procurement funds were reduced in FY 86 by GRH reductions and hight Air Force priorities, and in FY 87 & 88 by general reductions.

PE: 35164F, Title: Navstar Global Positioning System (User Equipment), DOD Mission Area: 357 - Navigation and Position Fixing, Budget Activity: 5 - Intelligence and Communications

RDT&E RESOURCES (PROJECT LISTING):

Project Number	Title	FY86 Actual	FY87 Est	FY88 Est	FY89 Est	Add'l Compl	Tot Est Cost
TOT FOR PE		25,836	28,972	45,801	61,697	Cont	N/A
COMPARISON WITH FY 1987 DESCRIPTIVE SUMMARY:							
RDT&E		27,960	45,024	52,650	N/A	Cont	N/A
Ac Procurement		52,100	77,900	155,500	N/A	Cont	N/A
Other Procurement		3,828	9,260	20,995	N/A	Cont	N/A

EXPLANATION: FY 86 RDT&E and Aircraft Procurement funding reflects adjustments for actual obligations and a reprogramming of Aircraft Procurement funds in response to aircraft modification schedule changes. FY 86 other Procurement funding reflects reprogramming to restore funding in response to Congressional reduction and preserve the FY 86 Low Rate Initial Prdctns. option. FY 87 RDT&E and other procuremente fdng. was reduced by Congressional action. FY 88 RDT&E funding was reduced by the Air Force to properly integrate funding with program requirements. Procurement funding was adjusted consistent with AF adjustments to aircraft modification line schedules and to accommodate the requirements of the Low-Rate Initial Production decision (Milestone IIIA) obtained from the Joint Req. and Mgt. Board in June 1986.

PE: 35165F, Title: Navstar Global Positioning System (GPS) - Space Ground Segment, DOD Mission Area: 357 - Navigation and Position Fixing, Budget Activity: 5 - Intelligence & Communications.

RDT&E RESOURCES (PROJECT LISTING):

Project Number	Title	FY 86 Actual	FY 87 Est	FY 88 Est	FY 89 Est	Add'l Compl	Tot Est Cost
TOT FOR PE		45,087	36,305	26,309	61,257	Cont	N/A
COMPARISON WITH FY 87 DESCRIPTIVE SUMMARY:							
RDT&E		44,365	44,362	45,592	N/A	Cont	N/A
Missile Procurement		197,398	129,665	103,585	N/A	Cont	N/A
Other Procurement		0	3,925	3,899	N/A	Cont	N/A

EXPLANATION: The FY 87 decrease primarily reflects Congressional reductions. Funding changes in FY 88 reflect a rephased competitive satellite development program supporting the production of GPS replenishment satellites extended development for the control segment, and satellite/launch vehicle interface engineering ans a result of the Shuttle standown.

PE: 33110F, Title: Defense Satellite Communications Sys (DSCS), DOD Mission Area: 333 - Strategic Comm, Budget Activity: 5 - Intelligence and Communications

RDT&E RESOURCES (PROJECT LISTING):

Project Number	Title	FY86 Actual	FT87 Est	FY88 Est	FY89 Est	Add'l Compl	Tot Est Cost
TOT FOR PE		7,077	16,833	21,398	53,596	Cont	N/A
COMPARISON WITH FY 1987 DESCRIPTIVE SUMMARY:							
RDT&E		6,753	14,001	12,531	N/A	Cont	N/A
Msl Procurement		141,066	122,671	65,389	N/A	Cont	N/A

EXPLANATION: Space Launch Urgent Supplemental provided $0.9M & $6.0M in FY 1986 and 1987 RDT&E respectively. Missile Procurement funds added for 1986-89 to implement Space Launch Recovery, including satellite storage and compatability with TITAN IV. The remaining differences are due to Congressional reductions.

PE: 12433F, Title: NUDET Detection System (NDS), DOD Mission Area: 332 - Strategic Survlnce & Wrng, Budget Activity: 3 - Strategic Programs.

RDT&E RESOURCES (PROJECT LISTING):

Porject Number	Title	FY 86 Actual	FY 87 Est	FY 88 Est	FY 89 Est	Add'l Compl	Tot Est Cost
Tot for PE		18,674	25,468	10,397	10.932	Cont	N/A
COMPARISON WITH FY 87 DESCRIPTIVE SUMMARY:							
RDT&E		20,015	31,346	9,717	N/A	Cont	N/A
Missile Procurement		22,299	26,325	N/A	N/A	Cont	N/A
Other Procurement		0	11,630	N/A	N/A	Cont	N/A

EXPLANATION: The increase in FY 88 funds the development of second sources of key satellite boxes to support the competitve development of NDS equipped GPS replenishment satellites and a user terminal reliability development and improvement program. The decrease in FY 86 was due GRH reductions. The decrease in FY 87 was due to Congressional reductions relating to the delays caused by the Shuttle accident.

PE: 35110F, Title: Satellite Control Facility (SCF), DOD Mission Area: 410 - Space Launch and Orbital Support, Budget Activity: 6 - Defense-Wide Mission Support.

RDT&E RESOURCES (PROJECT LISTING):

Project Number	Title	FY 86 Actual	FY 87 Est	FY 88 Est	FY 89 Est	Add'l Compl	Tot Est Cost
Tot for PE		66,298	78,702	109,531	126,898	Cont	N/A
COMPARISON WITH FY 87 DESCRIPTIVE SUMMARY:							
RDT&E		71,259	91,714	114,794	N/A	Cont	N/A
Aircraft Procurement		1,883	900	0	N/A	Cont	N/A
Other Procurement		47,256	78,227	113,275	N/A	Cont	N/A

EXPLANATION: RDT&E FY86 - Decrease resulted from inflation and GRH adjustments. FY 87 - Decrease is result of Congressional reduction of funds. Development of space program mission unique software and modifications to the AFSCN slipped to FY 88 and outyears. FY 88 - Decrease resulted from inflation and profit policy changes, the transfer of funding from another program into this PE and the rephasing of the Advanced Telemetry, Tracking & Commanding program to start in FY 89.

PE: 35119F, Title: Space Boosters, DOD Mission Area: 410 Space Launch & Orbital Support, Budget Activity:6 - Def-Wide Mission Spt.

RDT&E RESOURCES (PROJECT LISTING):

Project Number Title	FY 86 Actual	FY 87 Est	FY 88 Est	FY 89 Est	Add'l Compl	Tot Est Cost
Tot for PE	301,562	274,379	246,641	15,847	Cont	N/A
COMPARISON WITH FY 87 DESCRIPTIVE SUMMARY:						
RDT&E	215,751	138,690	118,310	N/A	-	-
Missile Procuremnt	120,194	282,747	348,831	N/A	-	-

EXPLANATION: The FY 86 RDT&E increase of $85.8M is the net result of a $94.0M increase for the FY 86 Urgent Supplemental to support the Space Recovery Program and a $8.2M decrease to reflect GRH reductions and other adjustments. The FY 87 R&D increase of $135.7M is the net result of a $142M increase for the Urgent Supplemental to support the Space Recovery Program and a $6.3M decrease associated with Congressional undistributed adjustments. The FY 88 R&D increase of $128.3M reflects a realignment between the R&D and Msl procurement appropriations associated with the Titan IV contract. Missile procurement additions in FY86 & 87 of $234.7M and $424M were included in the Urgent Supplemental for production and Launch rate enhancements for 13 additional Titan IV boosters and the first Delta II's. The FY 88 missile procurement increase continues Titan IV and Delta II production.

PE: 35171F, Title: Space Shuttle Operations, DOD Mission Area: 410 Space Launch & Orbital Support, Budget Activity: 6 Def-Wide Mission Support.

RDT&E RESOURCES (PROJECT LISTING):

Project Number Title	FY 86 Actual	FY 87 Est	FY 88 Est	FY89 Est	Add'l Compl	Tot Est Cost
Tot for PE	66,711	103,837	86,554	156,070	Cont	N/A
COMPARISON WITH FY 87 DESCRIPTIVE SUMMARY:						
RDT&E	75,432	175,867	226,621	N/A	Cont	N/A
Missile Procurmnt	240,699	59,062	109,286	N/A	Cont	N/A

EXPLANATION: The FY 86 decrease is attributable to pricing and support adjustments. Tha FY 87 decrease is attributable to Congressional reductions. The FY 88 decrease reflects transition of the Vandenburg Shuttle Launch Site to "minimum caretaker" status, termination of the NASA/Shuttle/Centaur program, and a revised Orbiter Flight Charge payment schedule due to the Challenger accident. Also procurement of PAM-D II upper stages for GPS satellites 29-48 has been deleted. Upper stages for these GPS satellites are planned to be procured as part of the follow-on Delta II launch vehicle buy.

PE: 63402F, Title: Space Test Program (STP), DOD Mission Area: 410 Space Launch & Orbital Support, Budget Activity: 6-Def-Wide Msn Spt

RDT&E RESOURCES (PROJECT LISTING):

Project Number Title	FY 86 Actual	FY 87 Est	FY 88 Est	FY 89 Est	Add'l Compl	Tot Est Cost
Tot for PE	57,255	49,219	90,197	130,644	Cont	N/A
2617 Free-Flyer Spacecraft Missions	18,425	24,589	55,168	79,049	Cont	N/A
2618 Quick Response Shuttle Missions	250	512	1,463	2,497	Cont	N/A
2619 Teal Ruby Msn	22,243	11,794	11,987	25,276	36,172	278,963
COMPARISON WITH FY 87 DESCRIPTIVE SUMMARY:						
RDT&E	66,690	73,692	83,730	N/A	Cont	N/A

EXPLANATION: The FY 86 funding reduction reflects adjustments for GRH and Small Business Innovative Research. Congress reduced the

FY 87 appropriations due to STP's significant reliance on Shuttle and the assumed lack of activity during the Shuttle Standdown. The FY 88 budget request was increased to compensate for additional program requirements due to the delay of Shuttle payloads and the increasing need to upgrade existing space systems which support OD missions.

E: 63707F, Title: Weather Systems (Advanced Development), OD Mission Area: 420 - Global Military Environmental Support, udget Activity: 2 - Advanced Technology Development.
DT&E RESOURCES (PROJECT LISTING):

roject Number	Title	FY 86 Actual	FY 87 Est	FY 88 Est	FY 89 Est	Add'l Compl	Tot Est Cost
ot for PE		3,146	3,187	5,276	5,838	Cont	N/A
COMPARISON WITH FY 87 DESCRIPTIVE SUMMARY:							
RDT&E		3,375	3,697	4,102	N/A	Cont	N/A

EXPLANATION: A zero balance transfer of FY88 funds from PE 64707F was made to provide required funding for the advanced development of the battlefield weather observation sensor and forecast techniques, as well as the development of automated weather observation sensors for lightning, clouds, visibility, and present weather/obstruction to vision.

PE: 64707F, Title: Weather Systems (Engineering Development), DOD Mission Area: 420 - Global Military Environmental Support, Budget Activity: 6 - Defense-Wide Mission Support.
RDT&E RESOURCES (PROJECT LISTING):

Project Number	Title	FY 86 Actual	FY 87 Est	FY 88 Est	FY 89 Est	Add'l Compl	Tot Est Cost
Tot for PE		7,638	8,163	12,537	11,769	Cont	N/A
COMPARISON WITH FY 87 DESCRIPTIVE SUMMARY:							
RDT&E		7,872	8,444	8,187	N/A	Cont	N/A

EXPLANATION: Additional funds are provided in FY 88 to accelerate the engineering development of NEXRAD and AWDS preplanned product improvements.

PE: 65808F, Title: Development Planning, DOD Mission Area: 440-Technical Integration/Studies & Analyses, Budget Activity: 6-Defense-Wide Mission Support
RDT&E RESOURCES (PROJECT LISTING):

Project Number	Title	FY 86 Actual	FY 87 Est	FY 88 Est	FY 89 Est	Add'l Compl	Tot Est Cost
Tot for PE		15,938	22,710	25,376	27,445	Cont	N/A
3360	Tech Support	2,000	3,144	6,212	8,339	Cont	N/A
3361	Mission and System Planning	13,938	19,566	19,164	19,106	Cont	N/A
COMPARISON WITH FY 87 DESCRIPTIVE SUMMARY:							
RDT&E		17,000	23,144	26,212	N/A	Cont	N/A

EXPLANATION: Differences reflect GRH reductions and inflation adjustments.

IMPACTS OF SLIPPING SPACE SHUTTLE LAUNCH SCHEDULE

QUESTION: Please provide a DOD assessment of the national security impacts of additional 12-month and 24-month slips in re-launch of the Space Shuttle, especially regarding status of satellite constellations. Describe DOD contingency plans to deal with further shuttle slips, including additional launchers and ground operations needed and costs/schedule/difficulty of implementing these contingency plans. Will either a supplemental request or budget amendment be needed for such contingency plans, and when would they be submitted to Congress? How long beyond February 1988 can the Shuttle slip before the Air Force decides to transition remaining shuttle payloads to expendable launch vehicles (ELVs) and how long will that transition process take, including schedule/cost to build boosters and, if necessary, reconfigure payloads; also, if the shuttle slips further, can DOD ELVs support NASA requirements as well as its own, and are NASA requirements considered in the contingency plans DOD is drafting for possible, additional shuttle delays?

ANSWER: Earlier this year we developed contingency plans for additional Shuttle down time. These plans indicated another 9 Titan IV launches through FY 95 are required for an additional 12 month slip (36 month down time) or another 19-25 Titan IV launches through FY 95 are required for an additional 24 month slip (48 month down time). These plans assumed no change in Shuttle flight rate or launch priorities from the current Shuttle manifest.

Since these contingency planning exercises, NASA has announced a slip to the resumption of Shuttle launches. We are working with them on a new Shuttle manifest now. The revised manifest will have a June 88 first flight and a reduced Shuttle flight rate. The schedule impact to DOD of this revised Shuttle manifest is roughly the same as our 36-month down time contingency plan.

[Deleted]. This reassessment is now underway and will be completed in July. The reassessment will include the production/launch capability enhancement requirements, the acquisition/contracting strategy, and the budget impacts.

We plan to submit a budget amendment when the complete budget impacts to launch vehicles and satellite programs are finalized. Our reassessment will also address NASA's requirements for ELVs.

PLANS FOR SOPC AND VANDENBERG SHUTTLE FACILITY

QUESTION: What are the military justifications for changes in plans from last year regarding the SOPC and Vandenberg Shuttle Facility? Are these alternative uses for the Vandenberg Shuttle Facility to avoid prolonged down time and what possibilities exist to accelerate restoration to active status faster than the four years now projected?

ANSWER: The US National Space Policy in the late 70s and early 80s provided that the Space Shuttle was to be DOD's primary access to space. The SOPC and the Vandenberg Shuttle facility were a commitment by DOD and the Air Force to the Shuttle program. They were to provide a redundant capability to NASA's Johnson Space Center (JSC) and a West Coast Shuttle launch facility, respectively. SOPC was to correct security, capacity and vulnerability problems derived from the single Shuttle command and control node at JSC and provide assured access to space when the Shuttle became DOD's primary access to space. Vandenberg would provide capacity, assured access, and launch capability to high inclination orbits. Now that the nation has decided to diversify its access to space by employing both Shuttle and expendable launch vehicles, the risk of losing total access to space is considerably lessened.

Based upon a limited DOD budget and a lower acquisition priority in the post-Challenger environment, funds were not available in the FY 88/89 President's Budget to continue SOPC development. In addition, it was not cost effective to spend $175-$250 million per year to maintain the Vandenberg Shuttle Launch site in operational readiness or operational caretaker status since the Orbiter fleet would be dedicated to East Coast operations until 1993 or later. We will, however, maintain Vandenberg in a configuration that will allow reactivation within four years. The decision to reactivate will be made when Shuttle recovery is complete and launch requirements dictate.

We have found and are continuing to search for alternative uses for the Vandenberg Shuttle facility during the caretaker years. These alternatives will not impact our ability to reactivate the site and represent good, sound management practices to maximize the use of these facilities.

CIVILIAN AND MILITARY PAYLOAD REQUIREMENTS AND LAUNCH SCHEDULE

QUESTION: What fraction of civilian and military payload requirements can be launched over the next five years, as a function of the schedule for resumption of shuttle service (with and without further slips in the shuttle re-launch) and of the funding level for purchase of Expendable Launch Vehicles (ELVs)? How are "requirements" defined, and has that definition changed over the last year as difficulties have appeared?

ANSWER: Before the recently announced change in the Shuttle launch resumption date, the NASA Shuttle Payload Flight Assignments Baseline (Oct 86) showed the following DOD flight rate:

FY 88	FY 89	FY 90	FY 91*	TOTAL*
2	5.33	5	2.33	14.66

*Thru Apr 91

While firm DOD flight assignments beyond April 1991 had not been agreed to, the DOD flight rate was tentatively set at:

FY 91**	FY 92	FY 93	FY 94	TOTAL
2.33	4.66	5	5	17

**May-Sep 1991

The impact of this latest additional slip (from Feb 1988 to Jun 1988) and a lower flight rate for the Orbiter fleet is under review. Additional expendable launch vehicles (ELVs) will be required to alleviate the mission impacts caused by this additional slip. We will have the impacts and additional ELV requirements quantified by the end of July.

The Space Launch Recovery program is building towards a launch posture that is more robust than prior to the Challenger accident. We have accelerated ELV procurements as much as possible for the FY 88/89 launches. Most DOD launch requirements in 1990 and beyond will be met with expendable launch vehicles (ELVs) such as Delta II, Titan II, and Titan IV. The DOD is refurbishing thirteen Titan IIs and planning to launch approximately two per year. We currently are procuring (or plan to procure) twenty Delta IIs and 23 Titan IVs. Possible contingency options and required Titan IV and other launch rates are in review as a result of the recent Shuttle launch slip and reduced flight rate. Additional ELVs will be needed in 1990-1995 to provide the capacity to meet DOD launch needs.

Launch "requirements" are determined on a satellite program by satellite program basis through the combination and weighting of a number of factors. The satellite program mission type and mission priority are the most important factors in determining launch requirements. Other factors we consider include: the number of spacecraft existing or required on-orbit to meet mission needs, state-of-health or condition of existing spacecraft, age of spacecraft, launch-on-demand/launch-on-need/launch-as-planned requirements, etc. These factors are even more important since the Challenger accident and are constantly reviewed in establishing launch priorities and utilization of very scarce existing boosters.

We cannot answer the questions for civilian payloads. The NASA should be in a position to provide that information.

MILITARY SPACE CAPABILITIES

QUESTION: Are there currently limitations in our military capabilities because of the small number of U.S. assets in space? Do we have a short term emergency plan for filling those gaps? Could those gaps widen if some of our satellites fail on orbit - how vulnerable are we?

ANSWER: Currently, three of the major operational space systems utilized by the Air Force, the Defense Support Program (DSP), the Defense Meteorological Satellite Program (DMSP) and the Defense Satellite Communications System (DSCS) are operating within their authorized force structure of (d) satellites, 2 satellites and 7 satellites (5 operational and 2 spares) respectively. DSP and DMSP operate with a "launch on need" philosophy for replacement of a failed satellite, while DSCS is authorized two spare satellites and uses its older, less capable satellites in this role. DSP is working toward having an operational on-orbit spare satellite in orbit by **[deleted]**. When achieved, this capability will allow for a relatively rapid replacement of a failed satellite. All three programs have satellites available for launch. The failures associated with the TITAN 34D and the Space Shuttle have left us in the position for the first time of having satellites to launch but no launch system. **[Deleted]**. Once the TITAN 34D is certified ready for launch, scheduled for late this summer, this problem will be corrected for DSP and DSCS. DMSP is launched on an Atlas and is not experiencing any launch difficulties at this time.

SATELLITE TECHNOLOGY

QUESTION: Since a major limiting factor in assuring U.S. military access to space appears to be lift capacity and availability, what research is underway by the Defense Department or any of its components to develop new technology aimed at producing smaller and lighter satellites that could be more easily launched by a variety of means.

ANSWER: The critical factor in assuring U.S. military access to space is a robust and diverse launch capability. Maintaining such a capability for small, light weight satellites would be easier and possibly less expensive than our current mix of launch systems.

Small, light weight and inexpensive satellites have been an item of study for several years. The difficulty has always revolved around our inability to define militarily useful missions which could be performed by truly small satellites. This has mandated performance and size increases to the point where cost-effectiveness trade-offs result in systems concepts composed of small numbers of large, expensive satellites.

We have continued to work on the technical base to support small satellites. Light weight materials, micro-electronics, advanced light weight computers and dispersed interactive design concepts all have application. Through the Advanced Spacecraft Technology Program, the Air Force has been looking at ways to reduce the cost and weight of satellites. Through the development of more efficient batteries and solar arrays, we hope to reduce the weight of these subsystems by approximately 28 percent. With continued funding support, these technologies will begin to transition to our satellite programs in the late 1980's.

In addition, there are several prototyping initiatives which may assist in identification of militarily useful missions. The Air Force, acting as executive agent for SDIO, is exploring two communications related small satellite concepts; the Multiple Satellites System (MSS) and the Cooperating Satellite System (CSS). The Air Force is also working with the Defense Advanced Research Projects Agency on an Advanced Satellite Technology Program (ASTP) which, while not offering the replacement of current systems with smaller satellites, could in the future lead to identification of military requirements for new tactical support capabilities.

While all of these small satellite initiatives are useful and have potential long-term benefits, it is the Air Force view that none of them offer the prospect of a near-term alternative to current or programmed DoD satellite and launch systems.

LAUNCH VEHICLE TECHNOLOGY

QUESTION: What research is underway to develop new technology aimed at producing significantly more efficient and effective launch vehicles -- not only in the heavy lift category, but for launching smaller, lighter payloads by a variety of means?

ANSWER: The recent launch failures have focused national attention on space launch capabilities. As a result, our launch industry is being reinvigorated. Innovation and creativity will result. The centerpiece of our effort is the Advanced Launch System (ALS). In this program, NASA and the DOD are working together to provide the capability to place objects in space at greatly reduced cost. The heavy lift capability coupled with the application of less manpower intensive booster processing, more efficient engines and essential reuse of critical elements may reach the goal of a ten fold cost savings per pound to orbit. We expect that technologies developed for ALS would also be applied to other classes of launch systems. In addition, the DOD has provided incentives to encourage the development of a commercial launch industry in the United States. Once established, the vigorous and innovative character of American industry would be expected to develop new cost saving launch capabilities. The following list contains the areas that will be part of the ALS technology effort:

Vehicle

Advanced LOX/HC Engine
Reusable LH_2 Tankage and Insulation
Actuator Systems
Maneuvering Terminal Decelerators
Advanced Fault-Tolerant Computers
Autonomous Vehicle Checkout
Lightweight Materials Primary Structure
Low-Cost Expendable Cryogenic Tanks
Multibody Ascent
Advanced Maneuvering Propulsion

Ground

Automated, Autonomous Vehicle Test and Inspection
Automated Data Management System
Automated Transfer Handling

Mission Control

Centralized, Secure Data Base Management System
Expert Systems
Computer-Aided Software Development
Adaptive Guidance Navigation and Control
Accelerated Loads Cycle

The Defense Advanced Research Projects Agency (DARPA) also has a booster technology and prototype program planned as a part of the Advanced Satellite Technology Program (ASTP) initiative. The Air Force will work with DARPA to identify inexpensive launch systems for very small satellites. Should such satellites prove militarily useful, mass production of both satellites and boosters could make it economically feasible to greatly expand the use of space systems for support of DOD war fighting needs.

Another effort intended to make possible more efficient and effective launch vehicles is the National Aero-Space Plane (NASP) program. The NASP technology effort is a joint DOD/NASA program to advance and then demonstrate in an experimental aircraft (the X-30) the enabling technologies for both civil and military manned aerospace vehicle systems capable of operating at sustained hypersonic speeds in the atmosphere and as a low-cost single-stage-to-orbit launch system. An operational aerospace plane would be especially valuable for missions in which a manned presence in space is needed. The payload for such a system will probably be at least on the same order as that of the current space shuttle, however, we have confidence that NASP derived technology will support the future development of aerospace vehicles with a wide range of payload capabilities (10,000 - 150,000 pounds). The goal of the NASP program is to demonstrate an order of magnitude (90%) reduction in cost compared to current systems. We believe this is possible because of the NASP technology program's emphasis on true reusability, single-stage-to-orbit, and horizontal takeoff and landing which will allow flexible basing, rapid response launch, and "on demand" access to near space. All of these characteristics should serve to significantly reduce the logistics support required to operate the space shuttle. Together with the ALS and other unmanned launch vehicles, such a NASP follow on vehicle would form a family of launch vehicles with complementary capabilities. Such a balanced fleet of manned and unmanned systems will support the national policy of assured access to space.

The NASP technology developments, which are underway on the key elements that will make possible a family of aerospace planes, include:

a. Advanced Hypersonic Propulsion - Airbreathing hydrogen fueled supersonic combustion (SCRAMJET) engines are being developed for speeds above Mach 5 to 25 (5 to 25 times the speed of sound).

b. Materials - To accelerate to and fly at speeds up to 25 times the speed of sound, new structural materials and designs are being developed offering higher strength, lower weight, better thermal characteristics, and greater reusability than any now available.

c. Computers - The development of aerospace vehicles is greatly enhanced by the use of advanced supercomputers for design and flight simulation of hypersonic aerodynamics.

ADVANCED LAUNCH SYSTEM REQUIREMENTS

QUESTION: When will a military requirement validated by the Joint Chiefs of Staff for an initial launch capability for the Advanced Launch System (ALS) be established, and does any validated military requirement exist for the interim ALS in 1994, other than early deployment SDI? At present, by what year does the first firm military or intelligence requirement for such a system occur?

ANSWER: The Secretary of Defense has validated a firm requirement for the ALS independent of early SDI deployment options. JCS coordination was accomplished during the review cycle for a report recommending ALS development that was sent to the President on 30 Apr 87. NASA coordinated on the report. The DOD needs to move toward a new launch system to meet capacity, availability, flexibility, assured access and low cost requirements. To take advantage of lower launch costs, several future DOD payloads are being evaluated for transition to the ALS. The timing for ALS compatibility is under intensive review.

ADVANCED LAUNCH SYSTEM PAYLOAD CHARACTERISTICS

QUESTION: What are the DOD or USAF requirements for an Advanced Launch System, and what are the payload characteristics that drive its design and flight date?

ANSWER: The DOD needs to move toward a new launch system to meet capacity, availability, flexibility, assured access and low cost requirements. To take advantage of lower launch costs, several future DOD payloads will be transitioned to the ALS. The timing for ALS compatibility is under intensive review. In addition, the ALS could facilitate the following improvements:

- Higher reliability launches
- Responsive surge and call-up capability in crisis
- Heavier lift capability enables payload changes that could provide
    - Flexibility in meeting GEO requirements
    - Heavier lift for power sources and repair on orbit
    - Survivability (shielding, maneuver, shoot back, etc.)
    - Storage in high orbits
    - Enable orbit changes
    - Increased onboard payload fuel/power for longer mission life

All known payload characteristics for weight, size and orbit are satisfied when the driving requirements for NASA payloads are met.

NASA'S DECISION MAKING ROLE FOR THE ADVANCED LAUNCH SYSTEM

QUESTION: To what extent has NASA been involved in the decision making concerning requirements for the Advanced Launch System?

ANSWER: NASA, from the center staffs to the Administrator has been and will be intensively involved in decision making concerning the Advanced Launch System. The Deputy Administrator was directly consulted, in writing, by the Secretary of the Air Force.

USAF/NASA MANAGEMENT STRUCTURE

QUESTION: Please describe the management structure to be utilized by the USAF and NASA to assure appropriate application of national resources to the joint agency requirements as directed by President Reagan's National Security Study Directive, dated May 1985.

ANSWER: A DOD/NASA Joint Steering Group was formed in May 1985 to oversee the National Space Transportation Strategy Study implemented by the President's directive. The study concluded that two new launch systems, an unmanned cargo vehicle and a new manned vehicle, are required to meet future national launch requirements. After coordination with NASA, the Air Force has released a Program Research and Development Amendment (PRDA) to identify launch requirements for an unmanned Advanced Launch System. The PRDA requests design proposals in mid-June 1987 for a low cost, flexible unmanned launch system that meets the nation's future launch needs. The Air Force has invited NASA involvement in the ALS program and believes their participation is vital to achieving the optimal system. Also, a joint NASA/DOD program was initiated in 1985 to develop the advanced technologies for a manned National Aerospace Plane (NASP). The NASP is envisioned as a highly advanced research aircraft, able to operate as a hypersonic or space launch vehicle. A Memorandum of Agreement has been signed by NASA and DOD that establishes DOD as having overall management of the Joint NASP program and NASA as having responsibility of technology maturation and civil applications and an integral role in the overall program. These two joint efforts should lead to launch vehicles that will meet the nation's launch needs in the future.

UTILIZATION OF NASA'S PROPULSION TECHNOLOGY PROGRAMS

QUESTION: In light of the fact that NASA has developed and managed recent heavy lift launch vehicles such as the reusable Space Shuttle, the expendable Saturn V, and Saturn IB launch vehicles which had payload capabilities within the range and even beyond what you are talking about, how do you propose to fully utilize the ongoing propulsion technology programs at NASA's Marshall Space Flight Center and the capabilities of NASA's National Space Technology Laboratory?

ANSWER: We are working with NASA to determine the best use of existing national expertise and testing facilities.

GROUND DEVELOPMENT TESTING FOR NEW LAUNCH VEHICLES

QUESTION: Realizing that ground development testing for new launch vehicles and their propulsion systems is necessary, would DOD plan to utilize existing NASA facilities at NSTL and benefit from cost sharing of an already in operational facility?

ANSWER: The DOD will use existing national facilities whenever possible and economical to do so.

DESIGN OF A TEST FACILITY AT EDWARDS AFB

QUESTION: The Commerce Business Daily of April 8, 1987 has an announcement that the Sacremento, California District, Corps of Engineers is commencing Design of a Test Facility at Edwards AFB (EAFB) or Marshall Space Flight Center for New Hydrogen and Hydrocarbon Engines. Has the decision to commence design been in any way coordinated with NASA?

ANSWER: Yes. The effort has been coordinated with the staff at Marshall Space Flight Center. The effort is only for the 10% design level to provide data for environmental studies.

TRANSPORTING PROPELLANTS TO EDWARDS AFB

QUESTION: There are no easy means for transferring large quantities of low density propellant to EAFB, whereas in the Mississippi, Louisiana and the NSTL area there is a system of access to closeby propellant supply depots. How would the Air Force propose to overcome this difficulty, and at what cost?

ANSWER: There is no significant difficulty in obtaining or transporting propellants. All necessary propellants in the proper quantities are manufactured in the Los Angeles area. There is adequate and existing rail and truck transport available to move the propellants directly to Edwards AFB test sites. The transportation cost would be slightly higher than by barge, but this cost would be a small fraction of total program cost.

TEST FACILITIES FOR ADVANCED LAUNCH SYSTEM

QUESTION: Is the USAF currently spending DOD funds reactivating, refurbishing, or improving USAF test facilities to provide Advanced Launch System engine capability? Where and how much and under what authorization?

ANSWER: No. The only ongoing effort is for studies as to how the extensive USAF test facilities could best be used for Advanced Launch System engine testing.

ADVANCED LAUNCH SYSTEM FUNDING PROFILES

QUESTION: You stated that if there were no early deployment capability imposed on the ALS by SDI, then the ALS program funding profile would be different than that contained in the FY 88-92 funding profile and an alternative profile which provides for an initial launch capability for ALS in the 1998-2005.

ANSWER: There is no firm cost estimate for the Advanced Launch System (ALS) because the specific system characteristics have not been defined. A definitive cost estimate will be developed by competing contractors as part of concept definition studies over the next year. However, a representative system has been costed. Delaying the initial launch capability (ILC) until 1998 would eliminate the need to field an interim vehicle which in turn would free up about $1 billion in FY 88-92 with a corresponding increase in FY 93-97. The interim vehicle is needed as soon as possible to begin the move toward lower launch costs for the nation, regardless of SDI deployment.

COST ESTIMATE FOR DEPLOYMENT OF SDI

QUESTION: The Air Force Space Division recently finished a cost estimate for deployment of SDI. Please provide this estimate, and supporting details, for the record.

ANSWER: Air Force System Command's Space Division has been doing cost research for the SDIO, emphasizing the development and evaluation of alternative cost estimating techniques for space systems. Current cost estimating techniques for space systems are based on building three or four satellites, while those needed for SDI must be based on potential production runs of hundreds of satellites assembled and tested in much the same manner that we do aircraft or tactical missiles today.

Part of the cost research has been to estimate costs associated with representative architectural elements which might be part of an SDI architecture to identify areas where technology investments are needed to reduce space system production costs and where improved costing methods need to be developed.

NASA'S SHARE OF NASP RESEARCH COSTS

QUESTION: The Fiscal 1987 Continuing Resolution restricted the obligation of certain funding for the National Aerospace Plane Program until the Secretary of Defense certified that NASA had agreed to significantly increase its percentage share of the total research, development, test, and evaluation costs of this $3.3 billion R&D program. The Secretary submitted this certification, despite the fact that NASA's share of the total R,D, T&E costs -- compared to the FY 86-90 costs referred to by the Secretary --

virtually is unchanged from the 20 percent share which prompted the Congessional action. Why has this certification been submitted if NASA's total contribution to the NASP research program has not increased as required under the law?

ANSWER: In the absence of any definition of "significant" in either the Continuing Resolution or from the Appropriation Committee staffs the Secretary of Defense certified that the increase in the NASA share in the FY 86-90 timeframe from 20.4% to 28.6% and overall from 19.1% to 20.3% does represent a significant increase given NASA's overall budget and NASA's willingness to provide much more of the near-term funding for this program during the period when NASA's contribution to the program is most significant.

The NASP technology program represents a national commitment to a revolutionary, high payoff aerospace technology program. This is an area where the United States has and should continue to lead the world. In view of that, it should be noted that the original DOD/NASA share ratio was formally agreed to between the Secretary of Defense and the NASA Administrator and was considered fair and appropriate by both because:

a. Initially DOD applications will clearly be the predominate utilization of the NASP technologies.

b. Civil applications for the NASP technologies are probably five to ten years later in time than the military applications.

c. NASA is already committing a significantly greater share of its budget to the NASP technology program than is DOD.

NASP AND ALS REQUIREMENTS AND COSTS

QUESTION: How does the NASP IOC affect the requirement for ALS and how does a 1998 ILC for ALS affect the need for NASP? Please provide an update FYDP and total costs of the NASP R&D program, and estimate the cost of an operational vehicle. What overlaps in technological developments are being pursued in both the NASP and ALS program and what is the justification for such duplication? What major progress has occurred in the NASP program since last year, and what is the current assessment of risk (high, medium, low) in accomplishing the total program, and in each of the key technology areas -- propulsion, airframe, etc.

ANSWER: As a technology development and demonstration system, the NASP does not have an IOC. The goal of the NASP program is to demonstrate technologies which will have a wide range of applications, including future space transportation systems. The NASP technology program is currently pursuing a research program which is intended to design, build, and test fly an experimental research-type aircraft (the X-30) in FY 1993. If the X-30 program is successful in demonstrating the technological basis for both civil and military systems capable of sustained hypersonic flight in the atmosphere and single-stage-to-orbit, an operational follow on aerospace plane, using NASP-derived technology could be available in the year 2000-2005 time frame.

The Advanced Launch Sytem (ALS) on the other hand is a development program with a specific mission and a specific ILC. While some of the technology needs for the ALS and a potential NASP follow on vehicle overlap, the focus is different. ALS is a state-of-the-art, rocket-powered, vertical take-off, unmanned heavy-lift (100-150,000 pound payload) vehicle. The NASP program is designed to significantly advance the state-of-the-art associated with manned, reusable, horizontal take-off and landing, air-breathing propulsion systems for hypersonic aircraft and single-stage-to-orbit space transportation systems. To ensure that there is no duplication of technology development efforts and to achieve maximum efficiency, the NASP and the ALS programs have coordinated their technology development tasks. This coordination process has helped reduce the required budgets for the NASP technology and ALS programs to their current levels.

The need for the current NASP technology program as well as any potential operational follow-on program is not affected by the planned ILC for the ALS program. An operational aerospace plane (not an objective of the current NASP technology program) would be especially valuable for missions in which a manned presence in space is needed. The payload for such a system will probably be at least on the same order as that of the current space shuttle.

Together with the ALS and other unmanned launch vehicles, such a NASP follow on vehicle would form a family of launch vehicles with complementary capabilities. Such a balanced fleet of manned and unmanned systems will support the national policy of assured access to space.

The current estimate for the total cost of the NASP technology program (FY 86-94) is approximately $3.3 billion. The current Five Year Defense Plan for the NASP technology program is as follows ($ in millions):

	FY 87	FY 88	FY 89	FY 90	FY 91	FY 92	FY 93	FY94
DOD*	110	236	306.3	(D)	(D)	(D)	(D)	(D)
NASA	62	84	105	(D)	(D)	(D)	(D)	(D)
TOTAL	172	320	411.3	(D)	(D)	(D)	(D)	(D)

*NOTE: All DOD funds for the NASP Technology Development program are consolidated in the Air Force line for FY 88 and out. FY 87 funds are in DARPA ($100M) and SDIO ($10M).

Because the characteristics (cost, performance, logistics, etc.) of any potential operational NASP-type vehicle are dependent on the results of the current NASP technology program (which results will be evident during/after the X-30 flight research program FY 93-95), and such a civil or military operational vehicle would not fly until the year 2000-2005 time frame, it is impossible to give an estimate of the cost of an operational vehicle. Indeed, a primary output of the current NASP technology program will be the information required to make a cost estimate for an operational NASP-type vehicle -- civil or military.

Significant progress has been made during the past year. The airframe conceptual studies have considered hundreds of configuration approaches and narrowed to several of the most promising concepts to achieve NASP experimental objectives. Propulsion design optimization studies have resulted in marked improvements in weight and overall performance. Both these achievements have been made possible in large part by advances in materials and structures technology where light weight, high strength systems have been devised and through advancement in computational techniques which are being utilized to design and analyze systems as never before possible.

Based on the above technical progress, the current assessment of risk for NASP in each technical area may be characterized as follows:

Airframe	Med
Propulsion	High
Materials	High
Computational Fluid Dynamics	Med
Avionics	Med

The overall level of risk is considered appropriate for an experimental flight vehicle demonstration program.

NASP ALTERNATIVE FUNDING PROFILES

QUESTION: Congress cut $39 million from the FY 87 request for the National Aerospace Plane, and the program slipped only four months. Secretary Weinberger this year informed the Congress that cutting $200 million from the FY 88 budget request of $236 million only would defer development of NASP by one year. Provide alternative five-year funding profiles for NASP which would defer the program by one year? By two years? Does the availability of a NASP reduce requirements for other types of launch vehicles, including the Advanced Launch System and Shuttle II? What is the military impact on the U.S. of a one or two year slip in first flight of the NASP developmental vehicle, and in IOC? Provide alternative funding profiles, and programmatic, scientific/technological, cost (FYDP and total in constant FY 88 and current dollars) and military impacts of alternative real growth in FY 88 NASP program budget request of 3%, 5%, 10%, 15%, and 20%.

ANSWER: Secretary Weinberger's letter stated that a $200 million cut in NASP funding would "defer" the NASP by one year. Deferring the program one year will incur more than the one year slip implied by this question. A $200 million cut would bring the critical engine and airframe portions of the program to a complete halt. Only a very modest effort in some basic technology areas could be sustained at the $36 million level. Assuming sufficient funds were provided in FY 89 the engine and airframe contracts could be restarted. Given procurement lead times and the time it would take the contractors to rebuild their teams, the first flight date would slip by at least two years to 1995. Depending on the contractors' continued willingness to invest private funds into a highly unstable program, the slip could be even greater, on the order of three years or more. The primary impact of any slip in the NASP program is loss of a significant competitive advantage over other countries who are investing in hypersonic technology.

If another country demonstrates NASP-type technology first, the risks to the nation from both an economic and national security perspective could be staggering. The technologies embedded in the NASP have the potential to radically change aerospace doctrine, strategy and tactics. The ability to fly, unrefueled, to any point on the globe in under 2 hours will dramatically alter the conduct of aerospace operations. The impact of the transition from turbojet to scramjet technology will be greater than the jump from piston engines to turbojets.

In addition to an indeterminate slip in first flight, a one-year deferral of the program could also have highly adverse cost impacts. Assuming that contractors would be less willing, or perhaps unwilling, to continue to invest in the NASP, a $200 million cut in FY 88 could result in as much as $700-1,100 million growth in total program cost. A representative five year funding profile is as follows ($ in millions, Note: DoD funds only):

Fiscal Year	88	89	90	91	92
Current Request	236	306	(D)	(D)	(D)
Deferred Profile	36	95	(D)	(D)	(D)

This represents an $855 million increase in total program cost and a three year slip in first flight to 1996.

The availability of the NASP will not affect the requirements for "Shuttle II" or the Advanced Launch System (ALS). Shuttle II is envisioned as a slightly updated technology space shuttle -- manned, rocket powered, vertical-launch, glide back to an unpowered landing. It could be used as a shuttle follow-on. The NASP technology program is currently pursuing a research program which is intended to design, build, and test fly can experimental flight research-type aircraft (the X-30) in the FY 1993 timeframe. It will demonstrate, among other things, the capability to takeoff horizontally from a conventional runway and accelerate into orbit, to go around in case of an aborted landing, to perform self-powered ferry flights, and be suitable for rapid turnaround. In short, a flexible, adaptable, supportable manned space transportation system. If the X-30 is successful, an operational follow-on aerospace plane, using NASP-derived technology, could be available in the year 2000-2005 timeframe. Such an aerospace plane could satisfy the requirement for a follow-on to the current space shuttle. The ALS is scheduled to be operational about FY 1998, although an interim ALS could be available earlier. Any operational NASP-type vehicle would not affect the requirement for ALS because of different missions and timelines. An operational aerospace plane would be especially valuable for missions in which a manned presence in space is needed. Together with the ALS and other unmanned launch vehicles it would form a family of launch vehicles with complementary capabilities. Such a balanced fleet of manned and unmanned systems will support the national policy of assured access to space.

We cannot provide meaningful program details for real growth levels of 3% - 20%. While it is reasonable to talk of real growth in total DOD spending at those levels, it is not meaningful with respect to an individual program. For example, at the 5% real growth level (assuming such a program could be formulated and ignoring inflation and the inevitable cost-growth accompanying stretch outs and further assuming both NASA and industry would continue to fully meet their current commitments), it would take until the year 2004 to accumulate the DOD's $2,700 million dollar share of the program needed to achieve first flight. If inflation and the other factors are included, first flight of the X-30 would be delayed well into the second decade of the 21st century at a 5% per year real growth level. By then, programs of other countries would have long since left our NASP in their hypersonic wakes.

DOD/NASA PROGRAMS

Question. What DoD space activities and programs have direct applications for the civilian sector, especially for civilian space programs in NASA, and what NASA programs/activities have direct applications for the military sector, especially DoD space programs; what programs in DoD have direct or major indirect counterparts in NASA?

Answer. There are a number of DoD space related activities that have direct civil/commercial application. These include DoD efforts in the following areas: navigation, with GPS; communications, with the Defense Satellite Communications Satellite, LEASAT, FLTSATCOM; meteorology/environmental, with Defense Meteorological Satellite and NROSS; space launch, with the Titan family of vehicles, the Delta II, and the Atlas; the National Aerospace Plane Program (NASP); and, space-related research and development in rocket propulsion, materials, VHSIC technology, space power, etc.

NASA programs that have direct applications for the military sector would include those activities dealing with near-earth space environment, upper atmosphere research, interplanetary exploration, atmospheric sounding program, Space Shuttle, Space Station, orbital maneuvering vehicle and orbital transfer vehicle programs, among others. Also, the solar-terrestrial research program has significant application to the DoD.

For those programs that have either a direct or indirect counterpart in NASA, a coordination effort is maintained so that duplication, when warranted, is minimized, and in certain cases, the program is undertaken as a joint activity. The Aeronautics and Astronautics Coordinating Board, a joint DoD/NASA activity, is chartered to facilitate the planning and coordination of activities to avoid undesirable duplication and to achieve efficient utilization of resources.

Some space-related programs that have direct or indirect counterparts in NASA include solid-rocket booster development, advanced propulsion systems, advanced communication system, advanced launch vehicles, etc.

In the early stages of research and development counterpart programs may be prevalent, but as these programs mature decisions are made to either establish a lead agency concept or a joint program. There is also the need to maintain either a like-program or certain aspects of a specific program to effectively pursue those applications that are unique to either the DoD or NASA. As a result of budgetary constraints, these are the exception rather than the rule.

DOD SPACE POLICY IMPLEMENTATION PLAN

QUESTION: Does the new DoD space policy have a detailed implementation plan, including annual timetables and budget allocations, and if so, by when and at what total cost will the new policy be implemented fully; if not, when will such an implementation plan be developed and provided to the subcommittee? Do the spending priorities in the FY 88/89 budget request (and rest of the FYDP) reflect the priorities of the new space policy, and if so, how, and if not, why not and will the budget request and FYDP be altered to reflect this new policy?

ANSWER: A DoD Space Policy Implementation Plan is being developed by the Office of The Secretary of Defense. A final plan is expected by mid-August 1987. Since many of the provisions of the new DoD Space Policy are affirmations of programs and initiatives previously undertaken by the Air Force, spending priorities in the FY 1988/89 budget request are consistent with the policy. Examples include the assured access to space initiatives (Titan IV, Delta II and ALS), an early Anti-Satellite capability to further deterrence and assured mission capability through the enhanced survivability of space and ground-based elements and their communications linkages.

MILITARY REQUIREMENT FOR FOURTH SHUTTLE ORBITER

QUESTION: How firm is the military requirement for the fourth shuttle orbiter, and ~~to~~ what extent is that requirement based on polar orbit/west coast launch considerations; if the Vandenberg shuttle launch facility remains in minimum caretaker status, and SOPC has been cancelled, does this impact on the requirement for the fourth orbiter, and does it mean that DOD again is limiting itself to single access to space vulnerability (in this case ELVs) for west coast/polar orbit needs?

ANSWER: The DOD does not have a requirement for a fourth Orbiter. National security needs can be met with the existing three Orbiters and Air Force expendable launch vehicles (ELV) consisting of Titan IV, Delta II, Titan II and existing ELVs. Our requirements for polar as well as equatorial missions can be satisfied with these assets.

The Vandenberg facility was placed in caretaker status because Orbiter availability for West Coast launches is precluded due to their dedication to East Coast operations until 1993 or later. Significant cost avoidance at Vandenberg is realized through this action while retaining the ability for DOD to reactivate the facility when Shuttle recovery is complete and launch requirements dictate.

We have taken specific actions to eliminate and preclude future dependence on a single access to space. These steps include the design of critical national security spacecraft to be dual compatible on both Shuttle and ELVs; increasing the capacity and breadth of our ELV fleet through additional Titan IV procurement, a Delta II booster procurement, and Titan II refurbishment; and initiation of 10,000 lbs class upper stage concept study contracts to eventually alleviate the impact caused by the Shuttle/Centaur program cancellation by the NASA. These measures will ensure that our objective of assured access to space is met and that never again will our space missions be threatened or left vulnerable.

IMPACT OF CENTAUR UPPER STAGE DEVELOPMENT PROGRAM CANCELLATION

QUESTION: What is the impact of NASA cancellation of the Centaur upper stage development program in terms of the operational need for an advanced upper stage and the costs and schedule impacts to the AF in FY 88/89, and the rest of the FYDP, and through year 2000? If NASA now needs upper stages, should it pay to help the AF develop a Centaur alternative?

ANSWER: The cancellation of the Shuttle Centaur program had a significant cost and schedule impact on critical national security missions. Many heavy DOD spacecraft required the Centaur upper stage to get to final orbit and operational mission altitude. We were able to mitigate the mission impacts somewhat because we were already planning to modify the Centaur to be compatible with the Titan IV booster, but our Titan IV

Centaur procurement plans assumed NASA would complete the DOD version of the Shuttle Centaur.

Our first Titan IV Centaur launch capability will be in FY 90 from the East Coast. This is a 16 month impact to our original FY 88 DOD Shuttle Centaur launch requirement date.

The cost impact to the Air Force to finish the Centaur development program will be:

FY 87	FY 88	FY 89	FY 90-93
$18.5M	$182.2M	$104.0M	[deleted]

NASA mission needs were also impacted by the Shuttle Centaur decision. They have requested three Air Force Inertial Upper Stages (IUS) for their Magellan, Ulysses, and Galileo planetary missions which had originally planned to use the Centaur upper stage. The Air Force has taken action to provide the IUSs to the NASA in time to meet their critical launch dates.

The loss of a Shuttle Centaur capability has also impacted our ability to totally implement an "assured access to space" policy. Without Shuttle Centaur, some spacecraft which were designed to be launch vehicle dual-compatible can be launched only on Titan IV. Until we can develop another 10,000 lb class upper stage to fly on Shuttle, implementation of this policy will be incomplete.

We plan to award conceptual study contracts in July 1987 for an advanced, Shuttle-compatible upper stage that can deliver a 10,000 lb spacecraft to geosynchronous orbit. This would be a complement to the Titan IV/Centaur capability and reestablish assured access to space for our heaviest payloads. We have invited the NASA to join us in this endeavor if this upper stage can meet their requirements. When their response is received, we will consider it in our decision to implement this advanced upper stage program.

Question: What military requirements exist in peacetime for space launches between 1987-2000 in terms of numbers of launches, payload types, and lift vehicles associated with launches/payloads?

Answer: The attached charts (classified SECRET) list the currently projected launches, by vehicles and by payload, from 1987 through 2000. The data is based on the current manifest and future projections of the Space Transportation Architecture Study (STAS). The projected launches described in the attachment are based on present constellation health and anticipated satellite ends-of-life, presently programmed payload production and programmed weight, planned booster production, etc. If any of these factors change, there will be a ripple affect and modifications to the launch schedules will be required. Therefore, the attached schedule should be understood as one which fulfills military requirements as they presently exist.

Question: Please provide a chart showing peacetime U.S. military requirements for 1987-2000 based only on validated military requirements.

Answer: The attached chart lists current programs designed to fulfill requirements which have either been validated or are in the process of being validated through Service or JCS channels. I have grouped the programs under the major areas of Space Operations, Warning, [deleted] and Command and Control. Space Operations includes the activities of Space Control and Space Support, and both are dependent on the space surveillance systems that support Warning. With respect to specific system requirements, we make no distinction between peacetime and wartime requirements as far as US Space Command assigned forces are concerned.

The programs listed are critical to ensuring the United States' security. However, hardware alone is clearly not enough, and no program can succeed without talented personnel. Therefore, my highest priority is to continue to ensure that our systems and support functions are operated and managed by well trained and highly qualified personnel. To attract and retain the quality people we need, we must ensure that they are adequately compensated. A failure to take care of our people would have a deleterious impact on this command's operational readiness.

SPACE OPERATIONS

- Defense Satellite Communications System
- Defense Meterological Satellite Program
- Leased Satellite (LEASAT)/ Fleet Satellite (FLTSAT)
- * Follow-on UHF (Follow on to LEASAT/FLTSAT)
- * Global Positioning System/Nuclear Detonation Detection System
- * Multispectral Imagery
- * Anti-satellite
- * Space Denial
- Space Test Program
- * Satellite Communications Radio Frequency Interference Detection (SATCOM RFI Detection)
- * Demand Assigned Multiple Access (DAMA/MINI DAMA)
- Advanced Spacecraft Technology
- * Satellite Laser Communications
- * Constituion/ Reconstitution
- * MILSTAR

WARNING

- * Space Based Radar
- [Deleted]
- * Boost Surveillance & Tracking System
- [Deleted]
- * Satellite On-Board Attack Reporting System (SOARS)

Ground Support

- Satellite Control Facility
- Consolidated Space Operations Center
- Launch Ranges
- Space Boosters
- Space Shuttle Operations
- Upper Stages
- * National Aerospace Plane
- * Deep Space Surveillance Radar
- * Naval Space Surveillance Upgrade
- Spacetrack Operations

[Deleted]

[deleted]

[deleted]

Ground Based

- BMEWS Improvements & Operations
- * Integrated Correlation & Display System
- SLBM Detection & Warning Improvements & Operations
- * Slow Walker Upgrade

COMMAND & CONTROL

- Cheyenne Mountain Center Operations
- * Attack Warning Processing & Display System
- * Alternate Space Surveillance Center
- * Alternate Space Defense Operations Center
- * Mobile Ground Station Communications Upgrade
- USSPACECOM Space Operations Center
- Survivable Command Post

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* Future Program

Question: Please provide a chart showing SDI early deployment in 1994 and a second chart with SDI deployment beginning no earlier than 1998 or after the year 2000.

Answer: The Strategic Defense Initiative Organization (SDIO) is responsible for the technology and research as well as the development of specific systems architectures which may be appropriate for various levels of ballistic missile defense deployment. My responsibilities as USCINCSPACE are only for operational planning and requirements development. In the absence of the decision to deploy a specific Ballistic Missile Defense architecture, I believe that this question should more appropriately be directed to the SDIO.

Question: In case of a major world conflict, will the U.S. most likely need to (a) replenish its space assets, i.e., satellites; (b) surge new space assets for additional capability; and (c) distribute information from space assets to tactical and theater commanders?

Answer: (a) It will need to do all of these. We know that the Soviets have the only operational anti-satellite (ASAT) system and we fully expect them to use it. A significant percentage of our low orbiting satellites would be considered high-value targets by the Soviets and these are well within range of the Soviet ASAT. **[Deleted].** In a major world conflict we must be prepared for Soviet attacks against our space forces. If critical capabilities are lost, replenishment would be required.

(b) **[Deleted].**

(c) Timely distribution of information to tactical and theater commanders is critical to ensuring that tactics and employment plans are based on the most current **[deleted]** **[deleted]** information. Having this information contributes not only to planning the most effective and efficient employment of forces, but also to accurate and timely assessment of the effectiveness of previous operations. In addition, in the dynamic environment of military operations, timely dissemination of information allows friendly forces to adjust to the changing battlefield.

Both direct downlink of information as well as quick turnaround of **[deleted]** information directly impacts the tactical commander's **[deleted]** command and control efforts. It is essential that the flow of information going to combatant forces be expedited during a conflict, and we are examining ways to improve the timeliness of data distribution.

Question: How will the theater and tactical field commander make use of space assets?

Answer: Field commanders use space systems in peacetime and will employ them across the entire spectrum of combat from low to high intensity conflict. This implies utilization of all the capabilities provided by communications, navigation, environmental, and surveillance systems. **[Deleted].**

The NAVSTAR Global Positioning System/NUDET Detection System (GPS/NDS) will perform two missions. The GPS will provide extremely precise position and velocity information to small, portable terminals used by land, sea and air forces. Accurate geopositioning has numerous military applications, **[deleted].**

Environmental and weather satellites allow advanced knowledge of weather conditions in the upper and lower atmosphere, water temperature, and ice and ice edges are essential for the planning and execution of modern combat operations.

(Deleted).

The SLOW WALKER Reporting System is a tactical reporting capability (deleted).

(Deleted).

All categories of forces, operating in all the operational media, utilize the capabilities provided by space forces.

Question: How, and how swiftly, will information be distributed to the field?

Answer: Our ultimate goal is to have information pass directly from the space asset to the user in "real time".

(Deleted).

The criticality of the information determines the degree to which the distribution process should be expedited. (Deleted). Our objective is to streamline the distribution system and networks to be as responsive as the situation demands.

Question: How will (deleted) space resource management be accomplished?

Answer: (Deleted).

Question: What is our current level of inventory of launch vehicles devoted to those replenishment and surge functions, and is that a militarily-sufficient inventory size?

Answer: The attached matrix, "Booster-Payload Matchups", identifies the current inventory of space launch vehicles and their respective payloads. [Deleted].

US space launch operations involve the launch of research and development systems and operational systems. The launch of operational systems can be further divided into initial deployment and replenishment. [Deleted].

[Deleted]. The launch of NAVSTAR Global Positioning System (GPS), involves the initial deployment of an operational system.

[Deleted].

Question: How many launch sites are maintained for replenishment and surge, and how vulnerable are those sites?

Answer: Replenishment is a programmed function, [deleted] [deleted]. For current and programmed systems, three launch sites are maintained: 1) The Eastern Space and Missile Center (Kennedy Space Center/Cape Canaveral Air Force Station) - seven Launch Complexes; 2) The Western Space and Missile Center (Vandenberg Air Force Base) - seven Launch Complexes. Both of these sites are coastally located less than one mile from the shoreline. The proximity to the coast makes them vulnerable to weapons launched from the broad ocean area -- [deleted] [deleted]. Coastal locations are subject to adverse weather with operational impacts. For example, since 1957, four hurricanes and five tropical storms have hit the Eastern Space and Missile Center. Additionally, thunderstorms occur on the average of 57 of the 91 days in the months of June through August. Due to Vandenberg's geographic proximity to the San Andreas and other active faults, the probability of an earthquake could represent a significant hazard to operations conducted at the Western Space and Missile Center. [Deleted].

Question: What will the U.S. do if these sites are denied?
Answer: (Deleted).

Question: What is our current level of inventory of satellites devoted to those replenishment and surge functions, what kind of satellites are in that inventory, and is that a militarily-sufficient inventory?

Answer:

A) Navy Satellite Navigation System (TRANSIT): There are (deleted) TRANSIT satellites available for launch (deleted) dual launches (i.e., Stacked Oscars on Scout (SOOS)). There are no plans to procure additional satellites or Scout boosters since TRANSIT spacecraft will be replaced by the NAVSTAR Global Positioning System before the end of their projected lifetime. These satellites are planned for replenishment only. (Deleted).

B) Defense Meteorological Satellite Program (DMSP): (Deleted). DMSP satellites are still being manufactured by RCA (deleted). Their delivery dates are programmed (deleted). Assuming no delays in starting the booster-payload integration and checkout, DMSP normally requires (deleted) days to launch. These satellites are planned for replenishment only.

C) Defense Satellite Communications System (DSCS): (Deleted). The satellites normally require (deleted) checkout prior to shipment to Cape Canaveral. The pad cycle time, including payload integration normally (deleted). These satellites are planned for replenishment.

D) Fleet Satellite Communications System (FLTSATCOM): (Deleted) FLTSAT is scheduled for launch on 24 July 1987. (Deleted).

E) Defense Support Program (DSP): DSP operations concept is for a launch on schedule to maintain (deleted). An additional three satellites are also funded and under construction.

(Deleted). There are no more FLTSATs after FLTSAT 8 and the current launch date for LEASAT is beyond FY91.

Question: How will the satellites be maintained and controlled, and are the current site(s) for such control and maintenance vulnerable?

Answer: Today, four networks control and maintain on-orbit USCINCSPACE satellites: the Defense Meteorological Satellite Program (DMSP) has a control center at Offutt AFB, Nebraska, with two remote tracking stations (one at Loring AFB, Nebraska, with two remote tracking stations (one at Loring AFB, Maine and the other at Fairchild AFB, WA); the Navy Navigation Satellite (TRANSIT) System is controlled by the Navy Astronautics Group at Point Mugu, California through a network of four tracking stations (located at: Laguna Peak, California; Wahiawa, Hawaii; Rosemont, Minnesota; and Prospect Harbor, Maine); the LEASAT system is controlled from a contractor facility at El Segundo, California through four Navy Communications Area Master Stations (NAVCAMS) (located at: Norfolk, VA; Guam; Oahu, Hawaii; and Stockton, California); the remaining USCINCSPACE satellites are controlled at the Air Force Satellite Test Center (STC), at Onizuka Air Force Station, Sunnyvale, California, through a network of seven tracking stations (located at: Vandenberg AFB, CA; New Boston AFS, New Hampshire; Thule AB, Greenland; Mahe, Seychelles; Guam; Kaena Point, Hawaii; and Oak Hanger, England). In addition, the space surveillance network provides precise updated orbital positions on satellites to these networks.

Beginning next year, USCINCSPACE satellites now being controlled by the STC will be controlled by the Consolidated Space Operations Center (CSOC) at Falcon Air Force Station, near Colorado Springs, Colorado, through these same seven tracking stations. A back-up Mission Control Center will be maintained at Onizuka AFS. Some satellite systems have at least one back-up control facility at the present time. We have initiatives to internet some of these networks, as well as to acquire additional back-up and mobile control systems.

The Defense Satellite Communications System (DSCS) spacecraft are controlled at the STC, with a network of Operations Centers managed by the Defense Communications Agency to control the communicatons payloads.

[Deleted].

Question: (a) Are the Soviets limited in their launch capability, or do they have assured access to space in peacetime and wartime? Why, or why not? (b) Can the U.S. deny the Soviets such access, and how? (c) Can the Soviets deny such access, and how?

Answer: (a) The Soviets are not launch constrained in their ability to launch space systems in either peace or during a major conventional conflict. They have the world's largest space infrastructure, a large inventory of boosters and spacecraft, and a large cadre of highly trained and experienced space support operations and launch personnel. [Deleted]. The Soviets also have almost twice as many active launch pads as we do. Soviet space doctrine also requires a reserve of forces for wartime use. Taken together, these give the Soviets assured access to space.

Not only do the Soviets produce both launch vehicles and payloads in large numbers, but they also have adequate storage facilities to house them. [Deleted]. The number of redundant launch pads for each booster type and quick pad turn-around times enable the Soviets to conduct surge launches. [Deleted]. The air-launched ASAT is intended only to negate those higher priority Soviet space assets which place our terrestrial forces at risk, primarily ocean surveillance systems.

(c) The Soviets have several means available to them to deny U.S. access to space. Not only do the Soviets have an operational coorbital ASAT, but they may employ direct-ascent interceptors using the Galosh ABM against low-altitude satellites. Two high energy ground based test lasers at the Sary Shagan test facility are assessed as having a probable ASAT capability. [Deleted] U.S. launch facilities could be subject to (deleted) conventional attacks during crisis or war.

Question: Which of our armed services are more or less reliant on space for their combat effectiveness, and which are more or less capable of dealing with Soviet space denial efforts to avoid degradation in their combat capabilities?

Answer: Combat missions are carried out by the unified and specified commands. These commands are organized to employ combined arms -- land, maritime, and air forces -- to achieve unity of effort among the Service forces so that the nation can make the best use of all its military resources in meeting its objectives and fulfilling its obligations. As

such, space systems are used by the unified and specified commands and not the separate Services. All space systems are "joint" systems. The reliance of these unified and specified commands on space and their ability to deal with the Soviet space denial efforts is described in detail in the Joint Planning Staff for Space Report on the Criticality of United States Space Systems, January 1986. The specific reliance of any particular command is highly mission and scenario dependant. In general though, all the commands depend a great deal on satellite systems and the associated ground facilities for communications, [deleted] and environmental information, and to varying degrees, on those systems that provide navigation information. There is no reason to believe that our dependency upon these systems will not continue to increase significantly over time because of the strategic and tactical advantages that space systems provide to combat forces. Reliable, long haul satellite communications, for example, provide strategic connectivity between the NCA, CINCs, government agencies, and allies, as well as tactical forces internetting for (deleted) operations, logistics, and administrative data. (Deleted). Space based environmental systems provide meteorologic, oceanographic, and terrain analysis support (deleted). These kinds of information and combat support are not readily or reliably available from terresterial resources and offer real advantages to our combat forces.

Space systems now provide essential support to our land, sea, and air forces; however, our limited satellite launch capability has delayed the establishment of planned communication and navigation constellations. (Deleted). Furthermore, we do not possess an operational antisatellite system to deny the Soviet Union the strategic and tactical advantages provided by their space systems.

Question: What are the relative vulnerabilities of the U.S. and Soviet Union in space; which nation is more reliant on space operations for the combat effectiveness of its armed forces; and how does each nation attempt to capitalize on the other's vulnerabilities in this arena?

Answer: [Deleted].

MILITARY SPACE PROGRAMS

QUESTION: Various witness from the Navy and the Joint Chiefs of Staff have identified Anti-Submarine Warfare (ASW) as the major challenge facing the Navy in the future. The Navy's principle thrust in the ASW area seems to be the design and construction of a new attack submarine. Will the Navy balance this investment with improved off-board and non-acoustic sensors, like those on NROSS, and on improved communications systems, such as Satellite Laser Communication (SLC), to ensure that the new SSN-21 will be able to get close enough to the enemy to acquire and attack before being detected?

ANSWER: The Navy is working hard in the areas of off-board and non-acoustic sensors to complement the SSN force. The NROSS program has been restarted and should reach IOC by the early 1990's; this will provide valuable oceanographic data. Satellite Laser Communications are being studied as one possible alternative to enhancing our ASW capabilities.

MILITARY SPACE PROGRAMS

QUESTION: Admiral, to state that the Navy is funding the Satellite Laser Communications system hides the fact that the level of funding ensures that a system could not be deployed until well into the 21st century. You state that fundamental requirements issues and difficult engineering questions need to be answered before a comparison of operational benefit versus affordability can be made. It sounds like the Navy does not know what its requirements are. When will the Navy determine its requirements?

ANSWER: The Satellite Laser Communications system still contains considerable technical and cost risk.

[Deleted] the program emphasis will continue to be on risk factor reduction.

QUESTION: Does the Navy have a specific timetable in mind for the development and deployment of SLC? If so, what is the basic plan, when will IOC occur, and what funds are contained in the FY 88-92 defense program?

ANSWER: The Navy does have a specific timetable for the development of SLC. The present program calls for a Milestone I Joint-Resources Management Board in FY 89, and a Milestone II meeting in FY-94. This would result in an IOC of about 2000.

The current funding contained in the Jan 87 FYDP is: 1988-$4.5M; 1989-$5.7M; 1990-92-$105M.

QUESTION: The Congress gave the Navy $21M for SLC in FY 87 -- an increase of $15M over the amount requested. What has the Navy done with this money to date?

ANSWER: These funds are being used to build, test and install the laser transmitter and receiver for the proof-of-concept demonstration and system specification development. We have applied $6 million of the FY-87 increase to further technology development and risk reduction. As a result of a Navy program meeting on 9 June, OP-098 will ensure that the remaining $9 million for FY-87 will be obligated.

QUESTION: The Defense Advanced Research Projects Agency has been funding this program at approximately $30M a year in recent years. However, the Navy is proposing to spend $4.5M and $5.7M in FY's 88 and 89. Isn't it true that the Navy is, in effect, shutting the program down?

ANSWER: Money is being spent as planned to complete the Navy-DARPA Memorandum of Understanding and reduce program risk. The current plan is to reach the Milestone II point in FY 94.

QUESTION: A number of positive developments reportedly occurred in the Satellite Laser Communications program over the past year or so: Specifically, an approved Tentative Operating Requirement, an approved Justification for a Major New Start, a positive JRMB review with DOD which resulted in the scheduling of a Defense Acquisition Board Milestone II review in 1988, successful Project Y tests, and the RIMPAC

86 exercise. Provide specific details which supported each positive development.

ANSWER: The Satellite Laser Communications Tentative Operational Requirement (TOR) was written and approved by the Navy, and the Development Options Paper is currently in work to respond to the TOR. The Justifi-cation for a Major System New Start (JMSNS) was required before the Navy could request funding in the SLC program.

The Defense Acquisition Board Milestone II review is not scheduled for 1988. At this time the Navy tentatively plans for a Milestone II review in FY-94. The final schedule for the SLC program is currently be-ing discussed as part of the program development.

The Project Y Green tests were successful, (deleted). This was the first phase of a two phase program. (Deleted).

The RIMPAC 86 exercise was a reasonably successful demonstration (deleted).

QUESTION: Discuss the detailed capabilities of the SLC system to provide survivable communications links to our strategic ballistic missile submarines, and enhanced communications links to our attack submarines in terms of data rate, message transmission times, jam resistance, operational envelopes for platforms and satellites, geographic coverage, tactical flexibility, especially near Soviet vessels, detectability~~, etc~~.

ANSWER: The SLC system (deleted) an has the potential to enhance the tactical operations of our tactical submarine force by delivering one way messages to submarines (deleted). It could also provide another communications link to our strategic ballistic missile submarines. The message transmission times are a function of message length, atmospheric conditions, and (d) /water conditions.

Because of its optic mode of transmission, the SLC system will be highly jam-resistant. Detailed capabilities of an SLC system, however, are dependent upon the system architecture which is selected. The number of satellites, their orbit altitude and inclination will be determined by this architecture.

QUESTION: What are the operational benefits the Navy expects from SLC? How do you assess the relative importance of the benefits to the SSBN vs. the SSN forces?

ANSWER: SLC has the potential for communications to submarines below periscope depth, with rapid delivery to selected platforms. Its laser downlink would be resistant to nuclear effects and jam resistant. (D). By delivering messages to our attack submarines at depth and speed, SLC could increase the time available for ASW search and reduce periscope depth excursions and radio antenna exposures. The Navy is assessing the additional contributions of SLC and the relative benefits to SSBNs/SSNs.

QUESTION: The Chief of Naval Operations, Admiral Trost, recently said ASW was his top prioritv and that we had to have an integrated effort by air, surface, and subsurface forces. If you are going to do this, doesn't it require real-time communications with the subsurface forces? If so, how are we going to do this without SLC? Provide a detailed comparison of the message transmission capabilities of, and operational restrictions imposed by, SLC and other communications systems in this scenario?

ANSWER: The Navy currently uses [deleted].

The Navy conducts an integrated air, surface, and subsurface ASW effort today. SLC has the potential to enhance this capability, and one example would be an increase in the time available for ASW search by attack submarines which would not have to interrupt their operations at speed and depth.

FIGURE 1

SUBMARINE COMMUNICATIONS SYSTEMS

SYSTEM	SERVES	DEPTH	ANTENNA	RCV/XMIT	DATA RATE
ELF	SSBN SSN	(DELETED)	(DELETED)	(DELETED)	(DELETED)
VLF	SSBN SSN	(DELETED)	(DELETED)	(DELETED)	(DELETED)
LF	SSBN SSN	(DELETED)	(DELETED)	(DELETED)	(DELETED)
HF	SSBN SSN	(DELETED)	(DELETED)	(DELETED)	(DELETED)
UHF	SSBN SSN	(DELETED)	(DELETED)	(DELETED)	(DELETED)
EHF	SSBN SSN	(DELETED)	(DELETED)	(DELETED)	(DELETED)
SLC	SSBN SSN	(DELETED)	(DELETED)	(DELETED)	(DELETED)
	PD	(DELETED)	(DELETED)	(DELETED)	(DELETED)

MILITARY SPACE PROGRAMS

QUESTION: How important are submarine operations in the Project Y environment going to be in the 1990s? What communications requirements will you have in this environment? Isn't the SLC system capable of providing this communications capability?

ANSWER: [Deleted].

QUESTION: As Soviet submarines get quieter, how will the Navy "cue" our SSNs assigned to hunt them? Would it be important to be able to do this in real-time at operational depths and speeds? How will we do this without SLC? Provide a detailed comparison of the message transmission capabilities of, and operational restrictions imposed by, SLC and other communication systems in this scenario.

ANSWER: The Navy is currently pursuing non-acoustic technology that will enhance our ability to cue quieter submarines in near-real time. Unfortunately, the status of this research is above the classification of this hearing. The ability to communicate with our submarines during a peaceful/violent peace environment can be handled by developing tactics to ensure success. Nevertheless, as the Soviets become more sophisticated, the Navy is constantly developing ways to combat their achievements.

QUESTION: As Soviet Anti-Submarine Warfare capabilities continue to improve, do you see a need for our SSBNs to go to deeper operational stations in the 1990s? If so, does this increase the importance of having SLC?

ANSWER: The Navy has a continuing technical evaluation program to examine the limits of any potential Soviet non-acoustic ASW threat envelope. [Deleted].

QUESTION: You infer that the Defense Meteorological Support Program (DMSP) weather satellites are satisfying all the Navy and Marine Corps tactical requirements. Isn't it true, however, that DMSP is satisfying only the present meteorological requirements and none of the Navy unique oceanographic requirements? Has our requirement for knowledge of the ocean environment lessened? Has the threat changed?

ANSWER: The Defense Meteorological Support Program (DMSP) weather satellites satisfy some of the Navy and Marine Corps meteorological data requirements. [Deleted] [deleted]. Additionally, the Television Infrared Observation Satellite (TIROS) system, and the Geostationary Operational Environment Satellite (GOES) system provide additional environment information to DOD.

The Navy has a requirement for oceanographic information in addition to the above systems. The Navy Remote Ocean Sensing System (NROSS) program is being acquired to meet that requirement. NROSS will provide a direct readout to selected Navy ships of data on sea state, surface winds and temperatures, and sea ice.

QUESTION: The Navy has invested in an over-the-horizon weapons capability with less apparent attention to how these weapons might be targeted. Your statement continues the often-told tale of "battle space" and "defense in depth" but your budget seems to support only strategy which seems to require us to close with the enemy for identification purposes and so obviate the benefit for the over-the-horizon weapons. What action are you taking to ensure that our extended range weapons have a useful chance of hitting the right target at their design range?

ANSWER: First, the Navy is acquiring the Relocatable Over-the-Horizon Radar (ROTHR) system to detect moving aircraft or ship targets [deleted]. The first site at Amchitka, Alaska, will reach IOC in 1988. The characteristics of the system will permit establishing of aircraft and ship tracks [deleted].

Second, the TADIXS-B Tactical Receive Equipment (TRE) program develops and acquires modified existing tactical receivers and associated processing systems designed to receive a real-time broadcast sponsored by national authorities which will contain near real-time geolocational and parametric information on ships and aircraft. The TRE will allow the tactical user to tailor incoming data by various parameters for targeting over-the-horizon weapons and in early warning/battle force management roles.

QUESTION: A major emerging concern is the weakness of Fleet defense against low observable airplanes and missiles. What technologies are you developing to do effective wide area, all weather surveillance against these threats? When will the capabilities become operational? Provide a detailed breakdown, by program element number and brief description, and with FY 88-92 annual funding, for all these technologies.

ANSWER: The U. S. Navy is developing a Relocatable Over-the-Horizon Radar (ROTHR) for wide area surveillance. This High Frequency (HF) radar will be initially deployed in FY 88 to Amchitka Island, alaska. The site is scheduled to begin operations in FY 89. The enclosed paper is the ROTHR extract from the FY 88-89 Congressional Justification Book. Planned application of the funds for FY 88 and 89 are contained in paragraph (e) of the enclosure. Page N-IV-19 provides a detailed budgetary breakdown of the ROTHR costs. [Deleted].

QUESTION: Your prepared statement highlighted the significant impact space systems are having on modern naval warfare. Can you describe what action you, as Director of Naval Warfare, are taking to ensure that the Navy's investment in space systems is in balance with investments in ships and airplanes.

ANSWER: Last year, the Director of Naval Warfare conducted the first Space Appraisal. We did that because of the increasingly essential impact which space systems have on Naval Operations in support of the Maritime Strategy. As a result of that appraisal, key programs were identified and supported in the budget program, and potential high payoff areas were highlighted for the future.

This year we are continuing this process with the second Space Appraisal, because space plays an essential role across all warfare areas. The results of the Space Appraisal are then combined with the results for all other warfare appraisals, as the Director of Naval Warfare puts together the annual Summary Warfare Appraisal. It is here that the all important balance in Navy warfighting investments is addressed and recommendations made.

QUESTIONS SUBMITTED BY SENATOR BYRD

Question. The Department of Defense conducts extensive space activities separate from those conducted by civilian agencies such as the National Aeronautics and Space Administration. One area in which the two programs overlap considerably, however, is the use of launch vehicles to place satellites in orbit. Both the military and civilian communities use the same stable of launch vehicles: the reusable space shuttle, and four "expendable" vehicles -- Scout, Delta, Atlas, and Titan.

The space shuttle was designed to be the single U.S. launch system once it became operational. In 1984, however, DoD decided that, in order to assure its access to space, it would retain the Titan family of launch vehicles and create a new version called the Titan IV. The first Titan IV is scheduled for launch in 1988.

In 1986, DoD decided to procure two additional launch vehicles. A "medium" lift vehicle contract was awarded to McDonnell Douglas recently, while specifications for a "heavy lift" launch vehicle are still being determined. Furthermore, NASA and DoD are jointly performing research on an "aerospace plane" concept that could result in several different types of vehicles, some of which would serve as a space transportation system. A number of questions have arisen about these different launch vehicle programs.

The DoD justification for heavy lift launch vehicle is that it will be needed for deployment of space-based elements of the strategic defense initiative, and thus will be needed as early as 1992 or 1993. If SDI is the only near-term use for the vehicle, and SDI's early deployment still remains a question, is funding this program premature? What other possible users are there for this vehicle in the early 1990s?

Answer. It is in the best interests of the nation to begin reducing the costs of space launch as soon as possible. Providing significantly lower space launch costs is the primary objective of the Advanced Launch System (ALS). To take advantage of lower launch costs, several future DoD payloads are being evaluated for transition to the ALS.

DOD AND NASA RELATIONSHIP ON THE HEAVY LIFT LAUNCH VEHICLE

QUESTION: What is the relationship between DOD and NASA on the heavy lift launch vehicle program? Should this be a program conducted solely by one agency, or should both contribute to its design, development, and funding?

ANSWER: The precise relationship between DOD and NASA for the Advanced Launch System (ALS) is being negotiated and an ALS management plan is expected soon. The need for the ALS was jointly identified by DOD and NASA as part of the Space Transportation Architecture Study. Competitive definition studies are now starting in support of the effort. These studies will be led by the Air Force with full participation of NASA. The ALS will be a national program and will not be conducted solely by one agency.

AEROSPACE PLANE USES

QUESTION: Is it DOD's intention to have the medium lift vehicle, heavy lift vehicle, and the aerospace plane all available in the year 2000 timeframe, or will the aerospace plane replace the others? What is your assessment of when the aerospace plane will be available as a space transportation vehicle rather than military aircraft?

ANSWER: Medium lift launch vehicles (MLVs) should be operational around the end of FY 1988. These MLVs consist of the Titan IV, Delta II, and Titan II. The heavy lift vehicle objective system (now called the Advanced Launch System, or ALS) is scheduled to be operational about FY 1998, although, an interim ALS could be available earlier. The National Aerospace Plane (NASP) Technology program is currently pursuing a technology program which is intended to design, build, and test fly an experimental research-type aircraft (the X-30) in the FY 1993 timeframe.

If the X-30 program is successful in developing and demonstrating the technological basis for both civil and military systems capable of sustained hypersonic flight in the atmosphere and single-stage-to-orbit, an operational follow-on aerospace plane, using NASP-derived technology, could be available in the year 2000-2005 timeframe. One version could be used as a space transportation system to replace the Space Shuttle, another as a military aircraft (a hypersonic interceptor, for example). The NASP technology (X-30) program will demonstrate the technological foundation for both.

An operational aerospace plane would be especially valuable for missions in which a manned presence in space is needed. Together with the ALS and other unmanned launch vehicles it would form a family of launch vehicles with complementary capabilities. Such a balanced fleet of manned and unmanned systems will support the national policy of assured access to space.

Questions Submitted by Senator Stevens

FISCAL YEAR 1988 SPACE BUDGET COMPARISON WITH FISCAL YEAR 1987

QUESTION: How does the FY 1988 request of $3.6 Billion identified in your statement, as similar to NASA activities, compare to the funding provided for FY 1987?

ANSWER: The $3.6 Billion portion of the Air Force space and space related FY 88 request which is comparable to NASA's activities is $0.31 Billion more than the funding provided for FY 87. Again, only related elements of the Launch, Ground Systems, Research and Development, and General Support lines are directly comparable to NASA activities.

FISCAL YEAR 1988 SPACE SHUTTLE BUDGET

QUESTION: What portion of the funding requested for FY 1988 is planned for Space Shuttle activities? If the Space Shuttle is not operational in FY 1988, will that impact the requirement for those funds?

ANSWER: Funding for DOD Space Shuttle activities is contained in the 1988/89 President's Budget under the Space Shuttle Operations Program (PE 35171F). A total of $523.6 million (all appropriations) is requested for PE 35171F in FY 1988. This funding supports the four major activities within the program: Shuttle operations and related activities, dual-compatible (Shuttle and Titan IV) and other upper stages, Vandenberg Shuttle launch site and Orbiter Flight Charge (OFC) payments to NASA. Based on our evaluation of the recent slip in Shuttle launch resumption (from February 1988 to June 1988), all requested FY 88 funding is still required. If Shuttle operations do not resume at all in FY 88, each of the four program activities would be affected in varying degrees depending on the announcement date of an additional slip and the length of the additional slip beyond FY 88.

Funding requirements to maintain the Vandenberg Launch Site (VLS) in minimum facility caretaker status would not be affected and remain at $50 million per year in FY 1988 dollars. There is no DOD request for funds for Orbiter Flight Charges (OFC) in the FY 88 PB due to outstanding DOD flight credits with NASA, but the liquidation of flight credits--and eventual resumption of OFC payments--would be delayed consistent with additional Shuttle down time.

The Shuttle operations and related activities (FY 88 request of $293.9 million) provides for, maintains, and sustains a secure operational capability at the NASA centers; provides for payload integration, mission planning, flight support and range support; and funds specialized Airborne Support Equipment (ASE) installed on the Orbiter to support DOD operations. The secure operational capability is not dependent on Shuttle flight rates, and it would not be cost-effective to curtail maintenance of this capability in FY 88 unless a Shuttle launch delay well beyond FY 1989 was announced. The cost and schedule impact to reestablish this capability would override any near term FY 88 savings.

Payload integration, mission planning, etc., is a four-year process. The activity level during the last 24 months before launch is particularly heavy with activities such as detailed operations planning, flight procedures build, timeline generation detailed launch trajectory/orbit calculation, and crew training/rehearsals/demonstrations. As a result of the recent launch slip of the next DOD Shuttle flight from May 1988 to September 1988, we will recycle from L-12 months (before launch) to L-16. Accordingly, we must reaccomplish launch date sensitive data, products and orbital events plans already completed, and add additional training and rehearsals to maintain personnel proficiencies for launch and on-orbit operations in 1988.

The ASE is needed for all DOD missions. The opportunity to procure and integrate the ASE onto the Shuttle during this down time will ensure its availability for flight and preclude any perturbation to the overall Shuttle recovery schedule.

The upper stages activity (FY 88 request of $179.7 million) is linked to and affected by the Shuttle schedule but to a different degree than the Shuttle operations activity discussed above. An Inertial Upper Stage (IUS) is scheduled on the first Shuttle launch (Jun 88). With the recent schedule slip, we have recycled from L-9 months to L-13. The same type of activities (e.g., mission planning, procedures, flight trajectory, software load, etc.,) must be accomplished for IUS as for Shuttle operations. Activities for Titan IV/IUS missions in 1988-89 are also funded in PE 35171F but are not affected by the Shuttle schedule. Funds are also requested for acquisition of upper stages for Defense Support Program (DSP) satellites 18-22. This activity is not affected by the Shuttle schedule.

In summary, additional Shuttle schedule slips of six months or less would not reduce the funds required in FY 88. A slip of 7-12 months could provide some cost avoidance opportunities depending on the timing of the slip announcement, but an additional review of the details of the slip is required before these opportunities could be quantified.

IMPACT OF COMMERCIAL ORDERS FOR TITAN IV AND DELTA II PROGRAMS

QUESTION: The press has reported a great deal of commercial interest in the Titan IV and Delta II programs. What impact will commercial orders have on the availability of these boosters for Defense programs? Should we expect cost savings on these programs as production rates increase to accommodate commercial orders?

ANSWER: Under the terms of the Commercial Space Launch Act, excess expendable launch vehicle capacity may be used by commercial enterprise. Therefore, availability for Defense missions will not be adversely affected. However, Titan excess capacity for commercial missions may be affected if a significant number of boosters must be added for increased Shuttle down-time, Shuttle performance degradation, or if the Shuttle flight rate is reduced. One positive benefit from the new commercial programs is that higher production rates with resulting economy of scale should tend to reduce unit costs of government-procured launch vehicles. As production increases, savings may be realized through lower costs on existing contracts and through lower negotiated costs on future procurements.

QUESTIONS SUBMITTED BY SENATOR GARN

DEPENDENCY ON TITAN IV

QUESTION: Mr. Secretary, when you were before this subcommittee, two years ago, seeking funding for a "complementary expendable launch vehicle" you very persuasively argued that this nation could not permit itself to be solely dependent on a single launch system - the shuttle - to orbit its heaviest class of payloads.

You were right - and the nation is in your debt that we are well along in development of the Titan IV.

Our shock and grief over the Challenger tragedy is now mixed with growing concern over the time necessary to restore the shuttle system to safe flight status. Furthermore, it is clear that orbiter performance will be substantially degraded and that it is unlikely that western test range operations will be initiated.

In other words, for our heavier class of payloads (DSP, DSCS, MILSTAR, etc.) and for polar orbiters beyond the Delta class - we're entirely dependent on a single launcher - the Titan IV.

Does this concern you?

ANSWER: We are still committed to providing dual access to space for our heavier class of payloads (DSP, DSCS, Milstar, and classified missions). DSP and DSCS are both Titan IV and Shuttle compatible. The primary launch mode for DSP is the Titan IV and the primary mode for DSCS is the Shuttle. NASA's termination of the Shuttle Centaur upper stage program leaves Milstar and some classified missions with only one access to space - the Titan IV. To correct this single access, we have asked NASA to join us in the development of a Shuttle compatible upper stage capable of delivering 10,000 pounds to geosynchronous orbit.

INTERIM HEAVY LIFT CAPABILITY

QUESTION: Initially, the Department of Defense indicated that it would like to develop a heavy lift launch capability in the 1998 - 2000 time period. This would mean that except for some restoration of shuttle capability - we would remain dependent on the Titan 4 for about 10 years for payloads in the 10,000 lbs. to Geosynchronous orbit class. Wouldn't it make sense and be desirable to secure an interim heavy lift capability in the 1993 to 1994 timeframe which could also be used to deploy the space station?

ANSWER: The joint DOD/NASA Space Transportation Architecture Study (STAS) identified the need for a heavy-lift unmanned cargo vehicle in the late 1990s to meet national requirements. We are now lead time away to develop that "objective" vehicle and have started a DOD/NASA cooperative effort with competitive concept definition studies. Depending on national requirements, elements of the objective system could be made available earlier -- as early as 1994. The early system is known as an interim vehicle with an operational cost savings goal of two to three times less cost per pound of payload to low earth orbit. The DOD requirements include capacity, availability, flexibility, assured access and low cost. Such an interim vehicle would also keep open the option for the mid-90s deployment of defense against ballistic missiles. Also, it might make sense to develop an interim system early for assured access requirements to complement the Titan IV 10,000 lbs to Geosynchronous orbit capability. Because NASA cancelled the Shuttle Centaur development, there is no longer assured access for 10,000 lbs to Geosynchronous class payloads. We are evaluating fixes to this situation including an option to develop a 10,000 lbs to Geosynchronous orbit upper stage that would be compatible with the Space Shuttle. We have issued design feasibility contracts to industry to evaluate this option.

STATUS/OUTLINE OF JOINT SPACE TRANSPORTATION ARCHITECTURE STUDY

QUESTION: I have frequently argued that, programmatically, it makes little sense to conduct military space activities completely separate from civilian space programs. Certainly, budgetary constraints are making it imperative that we seek the greatest degree of coordination between our nation's space activities to make the most of the limited dollars we have available.

I'm very pleased that, partially in response to this committee's directives, the DOD and NASA have undertaken a joint Space Transportation Architecture Study (STAS).

Please outline this study and its current status.

ANSWER: Early in 1985, the President directed DOD and NASA to jointly study the development of next-generation space transportation systems. In September 1985, in response to the President's direction, the DOD and NASA initiated a joint Space Transportation Architecture Study (STAS).

The STAS has a threefold objective. The first is to determine the most cost effective space transportation systems concepts for the period 1995-2010. The second objective is to identify the technologies required for these space transportation systems and provide a plan to develop these technologies. The third objective is to refine the concepts for these space transportation and support systems needed in the mid-to-late 1990s and early 2000s. Study completion is scheduled for the end of 1987.

The STAS is jointly funded and managed by the DOD (Air Force and Strategic Defense Initiative Organization) and NASA. Four competitively awarded contracts were established to accomplish parallel, independent studies. The STAS contractors are Boeing Aerospace Company, General Dynamics Space Systems Division, Martin Marietta, and Rockwell International. Study progress is being reviewed and guidance provided by a Joint Steering Group consisting of senior level DOD and NASA officials.

Because major space transportation systems require an extended period of time to develop, it is important that studies and analyses to define our next generation systems be done now if new options are to be available before the turn of the century. It is equally important that opportunities offered by advanced technologies be understood and that the most promising technologies be identified and developed. Final results from the STAS will not be available until late 1987. An interim report that was forwarded to the National Security Council (NSC) in 1986 has recently been released to Congress.

PURPOSE OF PRDA FOR A HEAVY LIFT LAUNCH VEHICLE DESIGN

QUESTION: Recently you proposed a draft Program Research and Development Announcement (PRDA) for a heavy lift launch vehicle design which was reviewed and commented on by both NASA and SDIO.

What is the purpose of this announcement and generally what are you seeking from industry at this time?

ANSWER: The PRDA is for competitive concept definition studies leading to System Design Review. The effort will last about a year. This is a cooperative DOD/NASA initiative to meet national requirements for low-cost, reliable space launch capability.

STATUS OF PRDA FOR A HEAVY LIFT LAUNCH VEHICLE DESIGN

QUESTION: What is the status of the PRDA?

ANSWER: The Program Research and Development Announcement (PRDA) for the Advanced Launch System was released to industry for proposals on 22 Apr 87. A pre-proposal conference was held at Space Division, Los Angeles Air Force Station, CA on 5 May 87 and the proposals are due on 15 Jun 87. Multiple contracts will be awarded in mid-July for concept definition studies. NASA coordinated on the PRDA and ten of their representatives attended the pre-proposal conference. NASA representatives plan on participating in the source selection.

QUESTIONS SUBMITTED BY SENATOR D'AMATO

MILITARY USE OF THE SPACE STATION

QUESTION: It was reported in today's Washington Post that the National Security Council settled a dispute over the military's use of the space station. Language was apparently eliminated from the space station agreement which reserved the right to use the station for national security purposes. How will this decision affect DOD's plans for a military use of the space station?

ANSWER: The press report referenced was not entirely accurate. The language concerning use of the station for national security purposes was not eliminated, rather it was moved out of the main body of the agreement. DOD plans for possible use of the space station have not changed. The door remains open for DOD use of the space station and that remains the desire of DOD - to have the option of performing low level experimental activities within the confines of existing laws and treaties.

SOVIET MILITARY USE OF THEIR SPACE STATION

QUESTION: To what extent are the Soviets using their space station for military or "national security purposes"?

ANSWER: The Soviets have made considerable progress toward achieving a permanent, militarily significant, manned presence in near-Earth orbit. In Feb 1986 the Soviets launched the core vehicle of a modular space station. MIR, as designated by the Soviets, is an impressive advancement over SALYUT-7, having enhanced solar energy and electrical power systems, greater computer capabilities, and individual "cabins" for crewmembers. The MIR core vehicle is essentially a habitation and flight control center. Most of the cosmonauts' military and scientific work will take place in specially outfitted space station modules. These modules will provide the Soviets with greater flexibility in performing missions such as resonnaissance, targeting, and military related R&D, as well as research in fields such as astrophysics, biology, and materials processing.

Soviet literature reports that the military applications of remote sensing, oceanography, meteorology, and geodesy have been the focus of repeated cosmonaut investigations. Even subjects such as astronomical observations also performed by cosmonauts have military uses. Such investigations, for example, can provide data useful for maintaining the orientation of certain equipment to an accuracy of a few arc-seconds, a capability needed to aim directed-energy weapons.

Conducting materials-processing experiments is an important cosmonaut function that has both civilian and military applications. Soviet efforts in this field, however, have concentrated on the production of substances with militarily significant applications regarding the development of semiconductor devices, infrared and optical detectors, and electro-optical systems.

Another crucial cosmonaut activity is Earth observation, which has implications for reconnaissance and targeting applications. These experiments suggest the Soviets are evaluating their ability to locate, identify, and track targets from outer space as the first step toward designing a space weapons platform for use against targets in space and on Earth.

SECURITY OF MILITARY-DEDICATED SHUTTLE MISSIONS

QUESTION: The general accounting office, in a draft report, questions whether NASA can provide sufficient security for military-dedicated shuttle missions. Since the shuttle operations and planning complex has recently been terminated, will the Johnson Space Center be able to handle the security burden of military-related missions when flights are resumed?

ANSWER: The Johnson Space Center can meet security and capacity requirements for military-related missions. Past DOD Shuttle missions controlled from the Johnson Space Center used the "controlled mode" capability put in place by NASA to meet DOD security needs. This capability currently exists and provides for operations and security requirements up to a classification level of SECRET. No DOD requirement exists to conduct Shuttle operations at a higher classification level. We must fund for maintenance of this controlled mode capability during the current Shuttle stand down to ensure we can utilize it to meet our security requirements when Shuttle flights resume in 1988.

The flight rate of secure DOD missions has also been reviewed. NASA has informed us that they can support a maximum of five secure flights per year. Current manifested

DOD missions and those shown on the out year planning manifest do not exceed this NASA maximum rate.

MILITARY IMPACT OF SLIPPAGE IN SHUTTLE LAUNCH SCHEDULE

QUESTION: NASA announced on Tuesday that it cannot meet the February 1988 target for the next shuttle launch. What will be the military impact of this delay?

ANSWER: NASA is currently finalizing a new Shuttle launch schedule (manifest). The new manifest has a June 1988 timeframe first launch and builds to a launch rate of 11 to 13 per year. The proposed manifest reduces FY 88/89 DOD flights from 6 dedicated missions plus 4 GPS missions to 3 dedicated missions with no GPS missions. [Deleted].
We are currently expediting a detailed assessment of production capacities, launch capacities, and budget impacts.

STATUS OF SOVIET SATELLITE PROGRAMS

QUESTION: General Piotrowski, in your statement, you point out that whereas the Soviets may not have a qualitative advantage in space programs, they do have a quantitative advantage, and they are closing the gap in technology. Of particular concern to me are the Soviet Radar Ocean Reconnaissance Satellite (RORSAT) and the Electronic Intelligence Ocean Reconnaissance (EORSAT) which can provide time-critical tracking and targeting of US troop and convoy movements. What is the status of these satellite programs? Are they fully operational?

ANSWER: Under cover of their COSMOS designator, the Soviets continue to develop and deploy space systems designed to support military operations on Earth. They now operate several types of space-based reconnaissance systems. Two of these, the radar ocean reconnaissance satellite and the electronic-intelligence ocean reconnaissance satellite, are used to locate naval forces that could be targeted for destruction by antiship weapons launched from Soviet platforms. The US has no comparable capability. Moreover, the Soviets actively practice their detection and targeting techniques, routinely launching these satellites to monitor both Soviet and NATO naval exercises.

The Soviets continue to expand an already mature satellite reconnaissance program. Several enhancements, such as incorporation of a data-relay satellite system, could improve the timeliness of their satellite reconnaissance data. Demonstrations of flexibility and versatility in launching and deploying their surveillance systems have continued, and the Soviets are capable of redirecting them for worldwide missions as situations dictate. Meanwhile, the satellite imagery reconnaissance capability has been refined, and space-based electronic-intelligence assests are being upgraded.

NEUTRALIZING OPPONENT'S SATELLITES IN TIMES OF HOSTILITIES

QUESTION: In light of the Congressional ban on ASAT testing, in what ways can we neutralize these satellites during times of hostilities?

ANSWER: The absence of an operational ASAT capability leaves only two practical alternatives for "neutralizing" Soviet satellites. Those are to either attack the ground segments associated with each system or attempt to electronically jam or interfere with the data links between the satellite and its control center or user terminals. Of course, the first option carries with it very serious escalatory implications since most of the Soviet satellite control centers and user terminals are located on the Soviet mainland and are not easily attacked using anything other than nuclear ballistic missiles. While electronic jamming of data links is a possibility, the effect is only temporary and not nearly as disruptive as direct attacks against either the satellite or its terrestrial command and control facilities.

SUBCOMMITTEE RECESS

Chairman STENNIS. With the thanks of the committee, you may go when you wish. I do not think we have anything else on the docket today. Thank you again.

The subcommittee will take a recess subject to the call of the Chair.

[Whereupon, at 11:20 a.m., Thursday, April 23, the hearing was recessed, to reconvene at the call of the Chair.]

DEPARTMENT OF DEFENSE APPROPRIATIONS FOR FISCAL YEAR 1988

TUESDAY, APRIL 28, 1987

U.S. SENATE,
SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS,
Washington, DC.

The subcommittee met at 9:30 a.m. in room SD-192, Dirksen Senate Office Building, Hon. John C. Stennis (chairman) presiding.

Present: Senators Stennis, Proxmire, Leahy, Sasser, Stevens, Kasten, and Cochran.

DEPARTMENT OF DEFENSE

ASSISTANT SECRETARY OF DEFENSE FOR RESERVE AFFAIRS

STATEMENT OF DENNIS R. SHAW, PRINCIPAL DEPUTY ASSISTANT SECRETARY OF DEFENSE FOR RESERVE AFFAIRS

ACCOMPANIED BY:
- LIEUTENANT GENERAL HERBERT R. TEMPLE, JR., USA, CHIEF, NATIONAL GUARD BUREAU
- MAJOR GENERAL JOHN B. CONAWAY, USAF, DIRECTOR, AIR NATIONAL GUARD
- BRIGADIER GENERAL DONALD BURDICK, USA, DIRECTOR, ARMY NATIONAL GUARD
- MAJOR GENERAL W. F. WARD, USA, CHIEF, ARMY RESERVE
- VICE ADMIRAL CECIL J. KEMPF, USN, DIRECTOR, NAVAL RESERVE
- MAJOR GENERAL JOHN J. SALESSES, USMCR, DCS, RESERVE AFFAIRS
- MAJOR GENERAL ROGER P. SCHEER, USAF, CHIEF, AIR FORCE RESERVE

NATIONAL GUARD AND RESERVE FORCES

OPENING STATEMENT OF CHAIRMAN STENNIS

Chairman STENNIS. Ladies, gentlemen and Members of our committee, our subcommittee will now come to order.

We have this morning a very interesting, a highly important presentation by the members of the National Guard and Reserves. This is one of the most impressive representations that I have seen here, ever in my time, and certainly it is an encouragement to all to see how you have grown, what you are doing, how you are serving your cause.

I have a very distinct feeling that a big difference here, and A plus in your favor and in the country's favor, is that so many of the Reserves and the Guard are people who are established in a community. They are part of the community life, they are part of the school system, they are part of the church system, they are part of the entertainment in the community.

And it all goes to make strength, patriotic feeling and a consciousness of responsibility. I think that is a major factor in the strength that we can depend on in this group. I am not here to flatter any of them anytime.

But it is just a fact of life. And I think the realization of that here in the Senate and the House of Representatives is one of the reasons there has been such a solid, meaningful growth here in the last several years. Growth and still added strength.

I still like to think about way back yonder during Woodrow Wilson's Administration, when we had a little trouble with Mexico, and he sent some armed soldiers down there, including a popular fellow there in my little hometown. He was a member of the Guard.

We did not know what that meant exactly, but he belonged to a group down there in Meridian. We found out he was our hero, and he was as long as he lived. So that is my beginning. I am still proud of his record and the fact that we have a Guard and a Reserve.

Now we are going to have more numerous attendance. We have Senator Stevens with us now who is well-versed in this and any other military subject. He is a long-time Member of this committee. Senator, would you like to say a word now? I will be glad to recognize you—you said you had to go to another place but would be back.

REMARKS OF SENATOR STEVENS

Senator STEVENS. Mr. Chairman, I share your feelings about this group. I think this is the backbone of our total defense, really. And working together we have done our best to try and improve their situation and give them better material and better equipment and newer equipment.

I share with you again this year the hope that we can fairly allocate the assets that are going to be made available to the Department of Defense so that the Guard and Reserve can maintain their strength.

I do have a meeting at 10:00 and I will be leaving here about 9:45 and come back as soon as it is over, Mr. Chairman. I want to be with you through these hearings, but this one is a meeting I cannot miss. So I will be gone for a little while.

DEFENSE COMMITTEES TESTIMONY

Chairman STENNIS. Well, we thank you for your remarks and know that you will make a valuable contribution this year, as you always do. We look forward to you coming back this morning as soon as you can.

Now we will move along. Gentlemen, we have a great volume of testimony on various phases of these programs. Now we need to get down to the money part. That is where we must have the facts.

We do not have time to stop and elaborate; nor do we have a chance to give as much time as we should at the time of the hearing. But my idea is that if we get those facts stated into the record by you gentlemen who are responsible for the programs, then they will be available to all the Membership.

And they are available to our valuable staff members, without whom we could not do the job, frankly. They do the work that we all get credit for. But that is part of it and they understand that.

So that is the contribution you are making here today, and you are responsible for the testimony you give and it will be valuable and helpful.

It may seem that we are hurrying up too much at times. But that is why I explained in the beginning the system and how it works. Fortunately we are not expecting to have a roll call this morning. We will have this afternoon very soon after 2:00, so let us cover as much as we can this morning.

I am going to call these names out and we will take you in that order, and, if you have something additional that you want to put in the record, just ask for permission and it will be put in the record and be available, as I have already said.

I do not want to put any firm limit on any of you for time, but you can say a whole lot in 10 minutes if you are really prepared for it, and just go right down the line on the major points. So without further explanation I am going to call now on Mr. Dennis R. Shaw, Acting Assistant Secretary of Defense for Reserve Affairs.

Mr. Shaw, are you ready to proceed?

STATEMENT OF DENNIS SHAW

Mr. SHAW. Yes, sir. I am.

Chairman STENNIS. All right. You proceed in your own way. As I say, I do not want to put any limitation on you, but if you will take about 10 or 12 minutes now, if you need more time later, we will give it to you.

Mr. SHAW. Thank you, sir. I want to thank you, Mr. Chairman, personally for inviting me to appear before the committee. I thank Senator Stevens as well for his remarks.

The reason I say thank you is because I am very much aware of the strong support that this committee has given to improving the readiness and the capability of the National Guard and Reserve Forces, particularly over the 5 years that I have been working in the Pentagon.

I will not abuse this opportunity with a long statement. I have a few minutes of remarks that I would like to render to the committee.

U.S. RELIANCE ON RESERVE COMPONENTS

I know this committee is well aware of the fact that the Nation has increasingly staked its security on the ability to rapidly mobilize, deploy and employ combat ready reserve component units and members anywhere in the world. In fact, today, many of our military contingency plans can not be effectively executed without committing some or many of the National Guard and Reserve Forces in the same time frame as the active forces.

For example, the reserve components were available and used in Lebanon, in Grenada, and most recently, in the retaliatory operation in Libya. When I use the word available, I mean they were ready and prepared to do the job.

Such a reliance on the reserve components requires that these units of the Selected Reserve be manned at a level that closely approaches wartime requirements. This has been one of our primary goals in recent years.

GROWTH IN RESERVE STRENGTHS

Currently we have the largest Selected Reserve in modern history; More than 1,130,000 members in fiscal year 1986. The Selected Reserve strength is authorized to grow by another 27,000 members this year, and we are requesting an additional 33,000 in 1988, and another 23,000 in 1989.

Growth in the full-time support force is included in these figures; that is 6,000 in 1988 and 4,000 in 1989. While full-time support force is increasing, it is increasing at a decreasing rate. In fact our request for additional full-time support personnel in 1988 is below the increase that was authorized in 1987.

Growth in the Selected Reserve is needed. I think it is essential to continue our effort to reach our overall trained unit strength goal of 90 percent of wartime requirements. The growth is needed to meet the most critical manpower demands of our new and expanded missions for the reserve components. This is discussed in greater detail in my prepared statement, which I ask you, Mr. Chairman, to enter into the record.

Chairman STENNIS. Without objection, it will be entered into the record.

QUALITY OF SELECTED RESERVE ACCESSIONS

Mr. SHAW. I am also pleased to report to the committee that the quality of the Selected Reserve accessions has continued to increase. Ninety-two percent of all of our 1986 enlistees were high school graduates. That is 4 percent higher than in 1985. Ninety-one percent scored average or above, which includes categories one through three, in the Armed Forces Qualification Test. That is 2 percent higher than in 1985.

INDIVIDUAL READY RESERVE

I am also pleased to report to the committee that the services are progressing well with the Individual Ready Reserve screening program. In 1987, we implemented a new requirement for all Individual Ready Reserve personnel to perform at least one day of active duty each year to ensure their availability and readiness in the event of a national emergency.

By the end of this fiscal year, 334,000 IRR members will have been ordered to one day of active duty for the purposes of validating their addresses, and updating their personnel status and records. We will check their physical condition and we will evaluate their military skill proficiency and determine if refresher training is needed.

The 450,000 members of the Individual Ready Reserve are our principal source of pre-trained individuals needed to fill wartime manpower shortages in active and reserve units. They are needed to replace unskilled or partially skilled unit members and also to replace combat casualties, all during the first 120 days of a full mobilization.

Consequently, there is absolutely no room for poor management of this critical resource. We simply must ensure the availability of these members to enhance their readiness. I acknowledge, Mr. Chairman, this committee's effort, and Senator Stevens' effort, to provide us the funds last year to conduct this program in 1987, and it is progressing well.

MEDICAL PERSONNEL SHORTAGES

On the not so bright side, reserve component medical personnel shortages and military occupational skill mismatches continue to be our greatest combat readiness challenges.

Measured against established wartime requirements, our total force, active, Guard and Reserve, is still short 7,100 physicians, which includes 5,300 surgeons and anesthesiologists. We are still short 31,000 nurses and slightly over 73,000 medical enlisted personnel.

These medical personnel shortages, coupled with medical equipment shortages, will preclude us from providing the necessary level of combat zone medical care in the early days of a short notice major conventional conflict.

5-YEAR PLAN

In order to begin to deal with this longstanding problem, the Department has developed and resourced a 5-year plan. The successful execution of this plan will, we believe, significantly reduce medical personnel shortfalls.

On the equipment side, the department is beginning to field the deployable medical equipment sets, or DEPMEDS, in this fiscal year, 1987. However, last year $132 million was cut from the DEPMEDS program. As a result, the program will not be complete, I am sad to say, until after 1993.

I said I would be brief, Mr. Chairman, so permit me to close by saying that we very much appreciate this committee's support of the National Guard and Reserve. Without that support these forces would not be as thoroughly integrated with the active forces as they are today, in terms of our national deterrent strategy, military training activities and exercises, peacetime operational missions, and warfighting capability.

We have made great progress in our drive to implement the total force policy since 1973. But we realize that much, much more remains to be done in order to make the reserve components even stronger and more capable than they are today. In this regard, we need, and we again ask, for your support for the reserve component programs we have presented in our first 2-year budget request. This will allow us to continue our progress and maintain the high priority we have placed on readiness.

Thank you, Mr. Chairman, I am prepared to try to answer your questions.

Chairman STENNIS. We thank you very much. We may have some questions later.

[The prepared statement of Mr. Shaw follows:]

PREPARED STATEMENT OF DENNIS R. SHAW

THE PRINCIPAL DEPUTY ASSISTANT SECRETARY OF DEFENSE

FOR RESERVE AFFAIRS

Mr. Chairman and members of the Subcommittee:

INTRODUCTION

I appreciate the opportunity to appear before this committee to present an overview of the Department of Defense FY 1988 and FY 1989 budget request for the nation's reserve components.

To successfully execute their increasing national security responsibilities, the National Guard and Reserve forces must be provided an adequate supply of manpower, especially in early deploying units, effective and realistic training, and modern equipment. This is an operational necessity, because the reserve components never have been more thoroughly integrated with the active forces in our national defense strategy. We have made great progress in our drive to implement the Total Force Policy; but, we recognize much more remains to be done in order to attain the level of readiness required by such unprecedented dependence on the reserve components. In this regard, we need and ask for your support for the National Guard and Reserve programs we have presented in our first two year budget.

FY 1988/FY 1989 BUDGET REQUEST

The specific estimates in the President's Budget Request for the reserve components are as follows:

Appropriation Summary

The Total Obligation Authority (TOA) for each of the reserve components is shown in Table 1.

TABLE 1
TOA ($ in Millions)

	FY 1986 Actual	FY 1987 Estimate	FY 1988 Estimate	FY 1989 Estimate
Army National Guard				
MILPAY	3,161.7	3,075.3	3,217.7	3,269.1
O&M	1,566.3	1,759.3	1,862.1	2,055.0
MILCON	97.2	140.9	170.4	161.1
TOTAL	4,825.2	4.975.5	5.250.2	5,485.2
Army Reserve				
MILPAY	2,149.1	2,117.4	2,278.5	2,363.6
O&M	740.9	780.1	879.1	958.2
MILCON	58.3	86.7	95.1	108.0
TOTAL	2,948.3	2,984.2	3,252.7	3,429.8
Naval Reserve				
MILPAY	1,329.3	1,397.0	1,516.1	1,571.2
O&M	827.9	886.8	957.1	1,036.8
MILCON	39.7	44.5	73.7	56.9
TOTAL	2,196.9	2,328.3	2,546.9	2,664.9

TABLE 1
(Continued)

TOA $ in Millions

	FY 1986 Actual	FY 1987 Estimate	FY 1988 Estimate	FY 1989 Estimate
Marine Corps Reserve				
MILPAY	283.0	278.3	294.7	302.6
O&M	54.4	64.2	71.4	85.2
* MILCON	-0-	-0-	-0-	-0-
TOTAL	337.4	342.5	366.1	387.8
Air National Guard				
MILPAY	974.3	948.6	980.0	980.0
O&M	1,723.3	1,795.5	1,973.0	2,030.9
MILCON	115.3	148.9	160.8	137.0
TOTAL	2,812.9	2,893.0	3,113.8	3,147.9
Air Force Reserve				
MILPAY	602.7	564.6	614.7	616.5
O&M	857.3	932.5	1,018.2	1,070.4
MILCON	59.9	58.9	79.3	59.3
TOTAL	1,519.9	1,556.0	1,712.2	1,746.2
Total DoD				
MILPAY	8,500.2	8,381.3	8,901.7	9,103.0
O&M	5,770.2	6,218.3	6,761.0	7,236.5
MILCON	370.5	479.9	579.3	522.3
TOTAL	14,640.9	15,079.5	16,242.0	16,861.8

*Military construction for the Marine Corps Reserve is included in Naval Reserve figures.

TABLE 2

Analysis of Reserve Component Growth

FY 1980 - FY 1988
TOA ($ Millions)

Reserve Component Budget	FY 1980	FY 1988	Increase FY88vs80	% FY88vs80
Current Dollars				
Military Personnel	2,457	7,278	4,821	296%
Retirement Accrual	-	1,624	1,624	100%
Operation/Maintenance	3,526	6,761	3,235	192%
Procurement	1,458	2,191	733	150%
Military Construction	120	579	459	483%
Total with Accrual	7,561	18,433	10,872	244%
Total without Accrual	7,561	16,809	9,248	222%

TABLE 2 (Continued)

Analysis of Reserve Component Growth

FY 1980 - FY 1988
TOA ($ Millions)

Reserve Component Budget	FY 1980	FY 1988	Increase FY88vs80	% FY88vs80
Constant (FY88) Dollars				
Military Personnel	3,987	7,278	3,291	183%
Retirement Accrual	-	1,624	1,624	100%
Operation/Maintenance	4,760	6,761	2,001	142%
Procurement	2,081	2,191	110	105%
Military Construction	163	579	416	355%
Total with Accrual	10,991	18,433	7,442	168%
Total without Accrual	10,991	16,809	5,818	153%
Reserve Component End Strength				
Manpower (In Thousands)				
Selected Reserve	869	1,190	321	137%
AGR Included	23	74	51	322%

Selected Reserve Personnel Strength

Under the Total Force Policy, we have increasingly staked our national security on the ability to mobilize, deploy, and employ combat ready reserve component units and members anywhere in the world rapidly. Today, many military contingency plans cannot be effectively executed without committing some or many National Guard and Reserve forces in the same time frame as active forces. For example, the reserve components were available and used in Lebanon, Grenada, and most recently in the retaliatory operation against Libya. Such reliance on the reserve components requires that units of the Selected Reserve are manned at a level closely approaching wartime requirements. This has been one of our primary goals in recent years. Table 3 displays the aggregate growth in the Selected Reserve since FY 1980.

TABLE 3

Selected Reserve End Strength
Manpower (In Thousands)

	FY 1980	FY 1987	Increase	(%) Increase
Selected Reserve	869	1,157	288	33%
AGR (Included in Above)	23	69	47	204%

Table 4 displays, by fiscal year, the Selected Reserve strength[1] for each reserve component.

TABLE 4

Selected Reserve End-Strength*
(Thousands)

	FY 1980** Actual	FY 1985 Actual	FY 1986 Actual	FY 1987 Estimate	FY 1988 Request	FY 1989 Request
ARNG	366.6	440.0	446.2	452.7	458.8	464.9
USAR	213.2	292.1	309.7	319.4	330.4	339.1
USNR	97.2	129.8	141.5	149.5	157.4	161.7
USMCR	35.7	41.6	41.6	42.8	43.7	44.5
ANG	96.3	109.4	112.6	113.4	116.7	117.1
AFR	59.8	75.2	78.5	79.6	83.3	85.5
DoD**	868.7	1088.1	1130.1	1157.3	1190.3	1213.4

* Numbers may not add due to rounding.

** For consistency, FY 1980 strengths have been adjusted to include Navy Training and Administration of Reserves (TARs) and Category "D" Individual Mobilization Augmentees (IMAs).

We have requested Selected Reserve strength increases of more than 32,000 in FY 1988 and 23,000 in FY 1989. These increases are needed to meet the most critical manpower demands of both new and expanded reserve component missions, which I will address later in this statement under the heading "Guard and Reserve Accomplishments."

We have requested an increase in Selected Reserve manpower end strength of 6,000 in both FY 1988 and FY 1989 for the Army National Guard, and 11,000 in FY 1988 and 9,000 in FY 1989 for the Army Reserve. Primarily, these increases will continue the effort to reach our goal of 90 percent of the wartime trained strength in units. Force structure increases and equipment modernization programs, particularly in aviation, also are included in our manpower request. For example, nearly 8,000 personnel and more than 700 aircraft will be added to the Reserve aviation structure, including two new attack helicopter battalions equipped with AH-1S (Cobra) helicopters in FY 1988 and four attack helicopter battalions in FY 1989.

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[1] Selected Reserve strength is the most commonly used measure of reserve component manpower. However, there are a number of other manpower categories. In order to assist the reader in understanding the various categories of reserve manpower and their relationship to mobilization requirements, a brief discussion paper has been appended to this statement.

We have requested a Selected Reserve end strength increase of 3,000 in FY 1988 and 1,000 in FY 1989 for the Air National Guard and an increase of approximately 3,700 in FY 1988 and 2,200 in FY 1989 for the Air Force Reserve. These increases will permit force modernization. The Air Reserve Forces will receive additional C-5 and C-141 strategic airlift aircraft and new C-130H tactical airlift aircraft. The Air Reserve Forces will expand their role in Special Operations Forces in FY 1988, activating an Air Force Reserve unit at Davis-Monthan Air Force Base.

To meet the increased wartime manning requirements of the Naval Reserve, we have requested a Selected Reserve end strength increase of 7,900 in FY 1988 and 4,300 in FY 1989. The Fleet Hospital Program is one of the fastest growing programs in the Naval Reserve. Fleet Hospitals are self contained, modular, rapidly deployable medical facilities that provide comprehensive care for fleet and Marine forces engaged in combat operations. Eventually, more than half the units in the Fleet Hospital Program will be manned by Naval reservists. The Naval Reserve's Craft of Opportunity (COOP) program will grow from nine craft to twenty-two craft by FY 1989. The objective of the COOP program is to enhance the port mine countermeasures capability through the use of converted civilian vessels. The surface reserve frigate program began in 1982, with the transfer of four KNOX Class frigates to the Naval Reserve. By the end of FY 1987, the Naval Reserve will operate seven KNOX Class and twelve gas turbine powered PERRY Class frigates. Four more PERRY Class and one more KNOX Class frigates will be added during FY 1988, for a total of 24 frigates in the program to assign 26 modern frigates to the Naval Reserve by 1990.

We have requested a Selected Reserve end strength increase of approximately 900 in FY 1988 and 800 in FY 1989 for the Marine Corps Reserve, primarily to meet requirements for activation of new units. The 4th Marine Aircraft Wing will activate a second KC-130T squadron and a second AH-1J squadron in FY 1988. In addition, the Medical Logistics Company of the 4th Supply Battalion, 4th Dental Battalion, and the remainder of the 4th Medical Battalion will be activated by the end of the FY 1988 time frame.

Despite the initial training requirements associated with an increase in programmed strength as well as replacing normal personnel losses, our trained strength in units (i.e., strength stated in terms of unit members who have completed initial training) is improving, as shown in Table 5. However, the rate of progress is limited by the assignment of additional wartime missions to the reserve components.

TABLE 5

Trained Manning In Units Against Wartime Requirements
(Thousands)

	FY 1985 Actual	FY 1986 Actual	FY 1987 Estimate	FY 1988 Estimate	FY 1989 Estimate
Wartime Requirements in Units	1110.0	1136.1	1165.4	1185.5	1208.3
Total Trained Personnel in Units	956.0	990.8	1030.0	1055.7	1071.0
Percent Trained in Units	85.9	87.1	88.3	89.0	88.5

Full-Time Support Personnel

Full-time support personnel perform the management, administration, training, equipment maintenance, and similar essential tasks associated with the increased readiness levels required of National Guard and Reserve units. Full-time personnel include Active Guard and Reserve (AGR) members (who are counted as part of the Selected Reserve), military technicians (civilian employees who are also members of the Selected Reserve and who mobilize with their unit), active force members (who are counted in active force end strengths), and Department of Defense civilians (who serve in a strictly civilian capacity and do not mobilize with their unit).

From FY 1980 through FY 1986 AGR personnel strength increased by approximately 50,000 members. An additional increase of 5,466 was approved for FY 1987, and we have requested an increase of 4,750 for FY 1988 and 4,575 for FY 1989. We are also requesting growth in the military technician program. Tables 6-1, through 6-6, depict the current plan for our full-time support programs.

TABLE 6-1

Full-Time Support (End Strengths)
Active Guard and Reserve (AGR)

	FY 1985 Actual	FY 1986 Actual	FY 1987 Estimate	FY 1988 Request	FY 1989 Request
Army National Guard	21,059	23,780	25,060	26,389	27,718
Army Reserve	10,751	12,159	12,407	14,250	16,000
Naval Reserve	15,012	18,391	21,476	22,505	23,665
Marine Corps Reserve	1,134	1,478	1,745	2,015	2,425
Air National Guard	6,369	7,098	7,631	7,906	7,972
Air Force Reserve	570	612	665	669	669
Total DoD	54,895	63,518	68,984	73,734	78,449

TABLE 6-2

Full-Time Support (End Strengths)
Military Technicians

	FY 1985 Actual	FY 1986 Actual	FY 1987 Estimate	FY 1988 Request	FY 1989 Request
Army National Guard*	23,769	25,292	25,211	25,517	25,979
Army Reserve	7,857	7,624	8,032	8,429	8,816
Air National Guard*	22,145	22,005	22,671	22,702	22,747
Air Force Reserve	8,064	8,348	9,190	9,830	10,023
Total DoD	61,835	63,269	65,104	66,478	67,565

* Excludes status-quo technicians hired under Title 32.

TABLE 6-3

Full-Time Support (End Strengths)
Active Component

	FY 1985 Actual	FY 1986 Actual	FY 1987 Estimate	FY 1988 Request	FY 1989 Request
Army National Guard	973	769	784	776	776
Army Reserve	1,230	1,230	1,230	1,230	1,230
Naval Reserve	5,847	5,857	6,004	5,568	5,418
Marine Corps Reserve	5,180	5,180	4,978	5,054	5,057
Air National Guard	724	719	744	687	632
Air Force Reserve	743	639	641	688	622
Total DoD	14,697	14,394	14,381	14,003	13,725

TABLE 6-4

Full-Time Support (End Strengths)
Civil Service

	FY 1985 Actual	FY 1986 Actual	FY 1987 Estimate	FY 1988 Request	FY 1989 Request
Army National Guard*	2,124	2,084	2,066	2,103	2,141
Army Reserve	6,496	5,411	3,762	3,695	3,727
Naval Reserve	3,081	3,102	3,212	3,204	3,194
Marine Corps Reserve	221	252	256	261	261
Air National Guard	2,474	2,496	2,573	2,533	2,503
Air Force Reserve	4,772	4,825	4,547	4,648	4,656
Total DoD	19,168	18,170	16,416	16,444	16,482

* Includes title 5 and title 32 civilian employees.

TABLE 6-5

Full-Time Support (End Strengths)
(AGRs, Technicians, Active Component)

	Actual FY 1980		Actual FY 1986		Estimate FY 1987		Estimate FY 1988		Estimate FY 1989	
Army National Guard	31,291	8.5%	51,390	11.5%	52,429	11.6%	54,251	11.8%	56,081	12.1%
Army Reserve	17,396	8.2%	25,198	8.1%	25,505	8.0%	27,738	8.4%	29,875	8.8%
Naval Reserve	18,101	18.6%	25,234	17.8%	27,560	18.4%	28,018	17.8%	28,844	17.8%
Marine Corps Reserve	4,698	13.2%	6,658	16.0%	6,764	15.8%	7,072	16.2%	7,353	16.5%
Air National Guard	24,075	25.0%	30,307	26.9%	31,596	27.9%	31,845	27.3%	31,901	27.1%
Air Force Reserve	7,506	12.6%	10,052	12.8%	10,395	13.1%	11,213	13.5%	11,367	13.3%
Total DoD	103,067	11.9%	148,839	13.2%	154,249	13.3%	160,137	13.5%	165,421	13.6%

TABLE 6-6

FY 1988/1989
Percent of Each Category
of Full-Time Support

	AGR		MIL TECH		ACTIVE		TOTAL	
	FY 1988	FY 1989	FY 1988	FY 1989	FY 1988	FY 1989	FY 1988	FY 1989
Army National Guard	5.8%	6.0%	6.0%	6.0%	0.1%	0.1%	11.8%	12.1%
Army Reserve	4.3%	4.7%	2.6%	2.6%	1.5%	1.5%	8.4%	8.8%
Naval Reserve	14.3%	14.6%	0.0%	0.0%	3.5%	3.2%	17.8%	17.8%
Marine Corps Reserve	4.6%	5.1%	0.0%	0.0%	11.6%	11.4%	16.2%	16.5%
Air National Guard	6.8%	6.8%	19.9%	19.8%	0.6%	0.5%	27.3%	27.1%
Air Force Reserve	0.8%	0.8%	11.8%	11.8%	0.8%	0.8%	13.5%	13.3%
Total	6.2%	6.5%	5.8%	5.8%	1.4%	1.4%	13.5%	13.6%

The effectiveness of the training provided to part-time, drilling reservists is a function of the quantity and quality of the full-time support force. Therefore, our goal is to field a full-time support force of highly motivated and skilled personnel that is cost-effective and capable of producing well-trained reserve component members and units fully prepared for rapid mobilization.

Individual Ready Reserve

The Individual Ready Reserve (IRR) is our principal source of pretrained individuals to fill wartime manpower shortages in active and reserve units, to replace unskilled or partially skilled unit members; and to replace casualties during the first 120 days of a full mobilization. There is a critical resource, and we must ensure the availability and enhance the readiness of these members.

Both law and DoD policy require the Services to continuously screen all Ready Reservists to ensure they meet wartime standards. In FY 1987, we implemented a new program requiring all IRR personnel to perform at least one day of active duty each year. Mandatory annual reporting will permit the evaluation of IRR skill proficiency, the determination of refresher training needs, and the confirmation of mobilization availability. It also will reinforce the IRR members' awareness of their continuing legal obligation for military service.

In FY 1987 the IRR mandatory reporting program was authorized, but not funded for full implementation. We believe annual IRR reporting is absolutely vital to the flow of manpower during the early stages of conflict. Therefore, we are providing additional funds in FY 1987 to fully support this program and improve the readiness of the IRR.

We estimate that the Services will need $55 million in FY 1988 and $61 million in FY 1989. I urge your support for this critically important effort.

TABLE 7
Funds Required for IRR Screening
($ in millions)

	FY 1988	FY 1989
Army	$30.8	$33.4
Navy	$14.1	$16.2
Marine Corps	$ 3.1	$ 4.0
Air Force	$ 7.1	$ 7.5
Total	$55.1	$61.1

The Army, Navy and Air Force have used IRR Reenlistment Bonus Programs to reduce specific shortages in combat and other critical wartime skills. Since the last quarter of FY 1984, when these programs were initiated, approximately 7,000 service members have reenlisted in the IRR.

The Defense Manpower Data Center continues to supplement intense Service efforts to determine addresses for unlocatable IRR members by conducting file matches with other Federal agencies and with active duty files.

The usefulness of the IRR manpower pool depends in large measure on the maintenance of proficiency in the military occupational specialties. Consequently, the Services have been required to measure the degradation of IRR skill proficiency and determine the most appropriate refresher training for each occupational skill. Refresher training will commence in FY 1988.

Table 8 shows the present and projected strength of the IRR by reserve component.

TABLE 8

IRR Strength

COMPONENT	FY 1986 Actual	FY 1987 Estimate	FY 1988 Estimate	FY 1989 Estimate
Army National Guard (ANG)	9,522	10,069	10,280	10,342
Army Reserve	300,818	344,790	363,316	380,291
Naval Reserve	73,824	80,300	85,800	101,400
Marine Corps Reserve	49,340	52,000	55,000	55,000
Air Force Reserve	48,709	49,941	48,291	50,381
Total	482,213	537,100	562,687	597,414

Selected Reserve Recruiting

Although an improving economy and declining youth population challenged our recruiting efforts, the investment in our recruiting programs produced 15,000 more non-prior service (NPS) recruits in 1986 than in 1985.

During the period 1980 to 1986, total Selected Reserve enlisted accessions increased 13 percent.2/ The proportion of prior service to non-prior service accessions remained relatively constant throughout this time. For example, the percent of prior service accessions was 58% in 1980 and 59% in 1986. Table 9 summarizes Selected Reserve enlisted recruiting from FY 1980 through FY 1986.

2/ However, total enlisted end-strength increased by 33 percent during this same period. The difference is attributed to increased retention.

TABLE 9

Selected Reserve
Enlisted Accessions
FY 1980 through FY 1986

Category	1980	1981	1982	1983	1984	1985	1986
PS	128373	126501	138321	130975	130624	143215	147921
NPS	93683	104077	106024	94679	87819	85555	102649
TOTAL	222056	230578	244345	225654	218443	228770	250570
End Strength	742221	777376	827302	861507	897749	936525	983583

We see continued improvement in the quality of recruits joining the Selected Reserve. Ninety-two percent of all FY 1986 accessions were high school graduates, a four percent increase over FY 1985. Ninety-one percent scored average or above (Categories I though III) on the Armed Forces Qualification Test (AFQT), a two percent increase over FY 1985. The overall improvement in quality is substantial, as shown in Table 10.

TABLE 10

Selected Reserve Enlistments (DoD)
Quality Indicators

Quality Indicators	Number	FY 1980 Percent Of Total Enlistments	Number	FY 1986 Percent Of Total Enlistments
High School Grads*	168,500	76	222,100	89
AFQT I-III**	172,200	78	226,200	90

* Includes equivalency certificate and diploma graduates, and best available estimates of those high school students who enlisted prior to their graduation and were expected to graduate.

** AFQT Categories I-III include enlistees who scored average or above on the enlistment test.

Recruiting Resources and Incentives

We are continuing to achieve our total end-strength objectives. The growth in Selected Reserve end-strength and the improvement in quality are the results of increased recruiting resources and expanded incentive programs (e.g., recruiters, advertising, enlistment bonuses, and educational benefits, including repayment of student loans).3/

Since 1980, the number of recruiting personnel has been increased by 30 percent, while the other recruiting resources were increased by 120 percent. The budget for enlistment bonuses increased from less than $5.0 million prior to FY 1980 to more than $118.0 million in FY 1986. Table 11 displays recruiting and retention resources from FY 1986 through FY 1989, including the New GI Bill entitlement for members of the Selected Reserve.

Advertising has played an important role in increasing the end-strength and improving the quality of recruits for the Selected Reserve. The Joint Recruiting Advertising Program (JRAP) has been particularly significant to the reserve components. Two million dollars is allocated in FY 1987 for reserve component print and broadcast advertising. Of this amount, approximately $1.12 million is earmarked to advertise the New GI Bill for members of the Selected Reserve.

TABLE 11

Reserve Components
Recruiting and Retention Resources

(Current $ in Millions)
(Includes New and Anniversary Payments)

	Actual FY 1986	Program FY 1987	President's Budget FY 1988	President's Budget FY 1989
Recruiters/Support Includes Military Payroll Costs	377.5	415.0	432.8	439.0
Advertising	44.1	51.9	61.7	61.4
Bonuses*	118.4	116.3	133.3	145.2
GI Bill (New Ch 106)	106.2	200.9	186.3	186.3
Total	646.2	784.1	814.1	831.9

* Includes: Enlistment, Reenlistment, Prior Service, Affiliation, and IRR Bonuses; Educational Assistance; and Loan Repayment programs for officer and enlisted personnel.

3/ Enlistment bonuses initially were authorized in FY 1978 for members of the Selected Reserve. Bonuses were limited to $1,500 and were restricted to recruits who agreed to serve in critical skill areas. In June 1981, the $1,500 statutory limit was raised to $2,000 (the current level). The student loan repayment program, which was part of the comprehensive FY 1981 Educational Assistance Test, permits reduction of the principal amount of certain federal student loans at a rate of 15 percent or $500 whichever is greater, for each year of satisfactory service in the Selected Reserve.

The New GI Bill for the Selected Reserve

While it is too soon to determine the GI Bill's short- and long-term effect on recruiting, our data now indicate there has been improvement in recruiting since July 1985. For example, since a reserve recruit must enlist for a six year term in order to qualify for benefits under the GI Bill, we can compare the length of terms of service for new accessions. There were 8,321 more six year enlistments during the fifteen months following enactment of the New GI Bill than were in the comparable period preceding its enactment.

Since the GI Bill program began, we have observed a sharp rise in the number of Selected Reserve participants. Currently, nearly one-third of the eligible members are using their entitlement to attend college. Table 12 details the eligible population and participants by component.

TABLE 12

Selected Reserve GI Bill
Enlisted Eligibles and Participants

Reserve Component	Eligibles*	Participants**
DoD	161239	54624
ARNG	86771	22999
USAR	18458	12090
USNR	14864	4927
USMCR	6496	2261
ANG	20834	8285
USAFR	13074	3686
USCGR	742	376

* As of January 1987.
** As of March 1987.

As of March 1987, approximately 55,000 applications have been processed by the Veterans Administration. Of these, more than 29,000 Selected Reserve members (nearly 53 percent) have applied for full-time benefits -- a relationship that has remained constant since the program began in July 1985.

The influence of the New GI Bill on improving the quality of Selected Reserve recruits is evidenced to some degree by the 5 percent increase (34,500) in high school graduate non-prior service accessions in FY 1986 as compared to FY 1984. I would caution, however, that changes in quality cannot be attributed exclusively to the New GI Bill. During the same period, other actions taken by the Congress and the Department of Defense also contributed to this improvement. For example, recruiting and advertising budgets were increased specifically to target recruiting efforts toward high quality individuals.

We see great potential in continuing the new GI Bill for the Selected Reserve. The program is designed to attract those who have completed high school and are motivated to enroll in a college or university; and also those high school graduates who have accumulated some college course credit but have not yet earned a degree. Nearly 93 percent of the Guard and Reserve enlisted members recruited during FY 1986 have at least a high school diploma or General Education Development (GED) certificate. More than 81,000 enlisted members (8 percent of total enlisted strength) have completed two years of college. Table 13 shows the percentage of those reserve component members who have completed two years of college.

TABLE 13

Enlisted Education Level By Reserve Component
(Those With Two Years College*)

Reserve Component	Two Years College (%)	Enlisted Strength
DoD	81082 (8.3)	972197
ARNG	33232 (8.3)	402628
USAR	19780 (7.8)	253070
USNR	14516 (12.5)	116640
USMCR	816 (2.1)	38123
ANG	5964 (6.0)	99231
USAFR	6774 (10.3)	62505

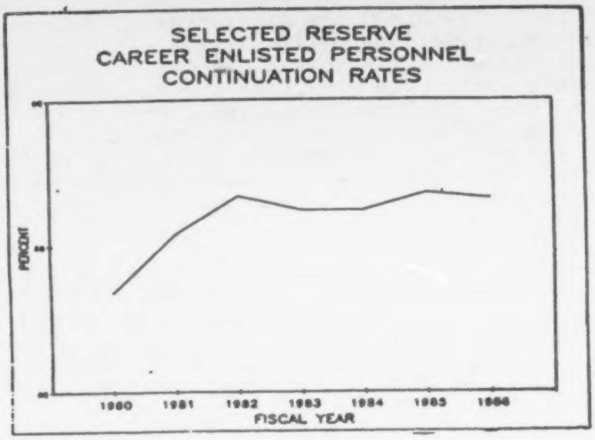
*Source: DoD 1147/1148 Report, FY 1986 Summary.

A 1985 RAND analysis of attrition and retention in the Army reserve components concluded that enlistment bonus recipients tend to honor their contracts and serve longer with their component. We believe this behavior also will hold true for New GI Bill recipients. To evaluate the effectiveness of the New GI Bill, we have asked the Sixth Quadrennial Review of Military Compensation (QRMC) to examine both the short and long-term effects of the entitlement. We look forward to this review and expect it will have a positive influence on future DoD legislative proposals.

Selected Reserve Retention

As I mentioned, Selected Reserve enlisted accessions increased 13 percent between 1980 and 1986, while enlisted end-strength increased 33 percent. The growth in end-strength not brought about by recruiting is due to increased retention. The following chart shows the trend in continuation rates4/ for career enlisted personnel (i.e., personnel with 6 or more years of service) in the Selected Reserve.

4/ Continuation rates measure the proportion of career personnel in the Selected Reserve at the end of one fiscal year who are still in the Selected Reserve at the end of the next fiscal year. Continuation rates are not reenlistment rates.



Reservists serving in critical skills are eligible for bonuses if they reenlist. Members receive a $1,250 bonus for a three-year, and $2,500 for a six-year, reenlistment. These bonuses also are authorized for prior service members who join the Selected Reserve and agree to serve in a critical skill.

Reenlistment bonuses were tested in the Army National Guard and the Army Reserve in FY 1978, with an appropriation of $5 million. The language of the Authorization Act specified the amount, form, and timing of the bonus payments, and the eligibility requirements for recipients. The test was significant because it permitted identification and analysis of the effect of reenlistment bonuses on retention.

Using the RAND Corporation's analysis of test data, we concluded that 8 percent of the total Selected Reserve end-strength increase since 1978 (330,000) can be attributed to the introduction and growth of the reenlistment bonus program. RAND's analysis also concluded that reenlistment bonuses encourage longer reenlistment terms and reduce attrition (See page 18).

Family and Employer Support

We have continued our efforts to communicate the vital role of the National Guard and Reserve forces in our Total Force to audiences throughout the nation, including the active force, reserve component family members, employers, public opinion leaders, and the general public.

Family Support

We know the influence of the family on retention and attrition in the National Guard and Reserve is as great as that of the employer. Furthermore, the Department of Defense has been assembling data on active duty military families in order to identify policy changes that encourage retention, control attrition, support morale, and increase the overall effectiveness of the active forces. In 1986, we expanded this project to include reserve component families. More than 100,000 members and 60,000 spouses have been surveyed. The survey results are being analyzed. This analysis should suggest what can be done to improve the attitudes of family members toward service in the reserve components.

We also have established a subcommittee of the DoD Family Policy Coordinating Committee to look specifically at reserve component family issues. This subcommittee will help us identify the needs of reserve families and actions that can be taken to improve family attitudes toward service. The subcommittee has been tasked to review Service plans to provide essential support to the families of mobilized reservists.

Finally, we have pre-enrolled approximately 350,000 Selected Reserve members and their dependents in DEERS (the Defense Enrollment Eligibility Reporting System). One of the primary objectives of DEERS is to develop and maintain a surge capability that would encompass additional eligible personnel upon mobilization. The first increment of new eligibles would be the family members of mobilized reserve component sponsors. National Guard and Reserve pre-enrollment demonstrates to the service member and to the family that they will have the proper medical care and other benefits at the time of mobilization. It also reduces the administrative burden during mobilization.

Employer Support

Our National Committee for Employer Support of the Guard and Reserve has organized and supports a network of state-level committees in all fifty states, the District of Columbia, Puerto Rico, the Virgin Islands, Guam, and Saipan. Non-paid, volunteer membership in these committees now exceeds 3,300 and includes influential business, labor, civic, and military leaders.

In 1986, State Committees conducted 74 award ceremonies, recognizing employers whose policies are especially supportive. Thirty-eight PRO PATRIA awards, the Department of Defense's most prestigious award for supportive employers, and 152 State Chairman's awards were presented. Certificates of Appreciation were presented to 12,796 employers nominated by their reserve component employees for outstanding support of participation in the National Guard and Reserve.

The National Committee's 1986 "BOSSLIFT" program gave 100 groups of 40 employers an opportunity to observe reserve training at locations such as Naval Station, Norfolk, VA; Nellis Air Force Base, NV; Fort Indiantown Gap, PA; and the National Training Center in California. State delegations also visited Washington, D.C., to receive briefings on the role of the National Guard and Reserve in the Total Force.

The 1986 Exhibits program provided employer support exhibits at 12 national and international professional and business conferences. The Direct Mail Information program provided employer support information to thousands of employers nationwide.

The National Committee manages a nationwide public service advertising program, with considerable support from The Advertising Council. In the last 5 years, Advertising Council sponsorship has provided more than $156 million of free radio, TV and printed media advertising. Printed materials are furnished to more than 9,000 daily and weekly publications and to 500 billboard companies nationwide. This year, four networks, 900 television and 7,000 radio stations will receive our public service announcements for broadcast. The 1987 advertising strategy will continue to focus on the contemporary roles and missions of the reserve components.

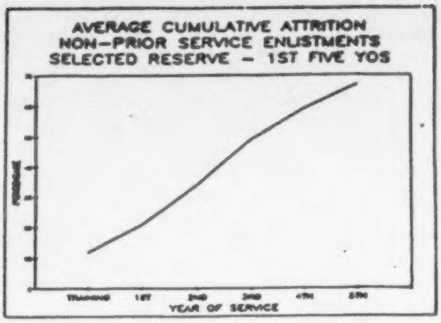
During 1986, the National Committee's Ombudsman Program resolved hundreds of employee/employer conflicts concerning the employee's service with the National Guard or Reserve. Reemployment issues that could not be resolved by the Ombudsman were referred to the U.S. Department of Labor. Among the statutory employment protection provisions administered by the Department of Labor is a law enacted in 1986 that prohibits discrimination against members of the National Guard and Reserve when they apply for jobs.

Selected Reserve Attrition -- Unprogrammed Losses

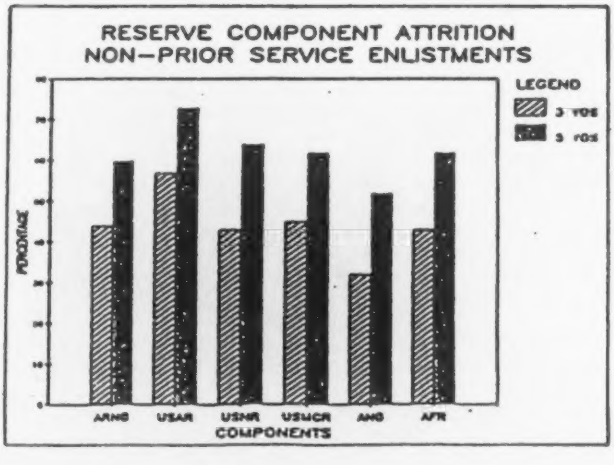
High personnel turnover (which includes both programmed and unprogrammed losses) is a persistent characteristic of the Selected Reserve. The majority of programmed losses (often referred to in terms of retention or reenlistment rates) occur at the end of a term of enlistment, when an individual either chooses not to reenlist or is denied reenlistment. Programmed losses are predictable and desirable. They assist us in maintaining an appropriate mix of age and experience and contribute to creating opportunities for advancement for junior personnel.

Unprogrammed losses (often referred to as attrition) occur when members fail to complete their Selected Reserve enlistment contracts. These losses have been a chronic and costly problem in the Selected Reserve; approximately one-half of all non-prior service volunteers complete less than three years of the standard six-year enlistment contract. For example, of those who enlisted in 1980, 16 percent did not complete initial training, another six percent dropped out prior to completing one year of service, an additional 14 percent left during the second year of service, and by the end of three years a total of 49 percent of the group had separated.

In 1986, the loss rate for enlisted members at the three year point of service increased to 53 percent, compared to 51 percent in 1985. It was particularly high for the Army Reserve, increasing to 68 percent from 61 percent in 1985. Average cumulative attrition rates, from 1978 through 1985, are illustrated in the following two charts.



(This chart illustrates average cumulative attrition of members who were non-prior service enlistee in the Selective Reserve from 1978 through 1985. All reserve components are combined. It shows that 12 percent of non-prior service accessions left before completing initial training, 20 percent left before completing one year of service, 50 percent left before completing three years service, and 67 percent failed to complete five years of service.)



(This chart illustrates reserve component attrition behavior of non-prior service members from 1978 through 1985. Attrition is shown at the completion of three and five years of service for each reserve component.)

Minimizing attrition in the Selected Reserve is one of our biggest challenges. Attrition reduces the effectiveness and readiness of units. Furthermore, it causes personnel turbulence which adversely affects training within units. It is a loss of the entire investment in training, and results in additional costs to train replacements. The following table gives the average cost estimates for recruiting and training new members of the reserve components.

TABLE 14

Reserve Components
Average Replacement Costs Per Person
(FY 1986 Data)

	Recruiting	Basic Training	Technical Training	Total
Army Components	$ 2,100	$ 4,879	$ 9,521	$ 16,500
Navy	3,193	3,126	2,401	8,720
Air Components	1,673	4,852	13,660	20,185
Marine Corps	4,000	4,100	4,900	13,000

Despite high attrition rates, the reserve components have met end-strength objectives every year since 1980. Moreover, the quality of Selected Reserve recruits has improved steadily. Consequently, the 1988 and 1989 budget requests for recruiting do not include any major changes. The 1988 request for Selected Reserve recruiting is $39.9 million more than the 1987 program. This will provide 6 percent ($29.8 million) in real program growth. The remaining $10.1 million is an inflation adjustment.

TABLE 15

Reserve Components Recruiting Resources
(Current $ in Millions)*

Component	Actual FY 1986	Program FY 1987	President's Budget FY 1988	President's Budget FY 1989
Army National Guard	233.9	237.3	242.1	244.4
Army Reserve	140.1	152.4	162.8	167.7
Naval Reserve	62.9	75.7	88.2	92.3
Marine Corps Reserve	19.8	19.3	18.6	18.4
Air Force Reserve	19.5	25.4	29.5	32.2
Air National Guard	31.9	35.4	38.4	37.5
Joint Advertising	2.0	2.0	7.8	8.0
Reserve Total:	$500.1	$547.5	$587.4	$600.4

*Numbers may not add due to rounding.

The Department of Defense has developed and is maintaining a broad and balanced recruiting and retention program. Since 1981, the full-time recruiter force has been expanded by 30 percent; advertising has increased 80 percent; the funding of enlistment and reenlistment bonuses has been increased by more than 120 percent; the New GI Bill provides up to $140 a month for undergraduate studies; financial assistance is being provided to officers in education programs in critically short medical specialties; health care benefits have been extended to reserve component members who are disabled while in training; and the Employer Support volunteer force has been expanded to more than 3,000 members.

I am confident these programs and the continued support of this committee will enable us to meet our programmed manpower objectives.

National Guard and Reserve Equipment

The equipment status of the National Guard and Reserve forces continued to improve during FY 1986. And, we have developed management tools to identify specific equipment problems and to improve equipment procurement and distribution.

Our FY 1988 report to the Congress on the status of National Guard and Reserve equipment is based on a representative sampling of 1,240 major line items of reserve component equipment. This report shows that equipment valued at $7.6 billion was delivered to National Guard and Reserve forces during FY 1986. This included more than 160 aircraft, 51 helicopters, five ships, 279 tanks, 191 howitzers, 559 grenade launchers, 1,300 machine guns, and 17,000 tactical and support vehicles. Furthermore, nearly $4.7 billion of aging, obsolete equipment was removed from reserve component inventories through equipment modernization actions.

If the National Guard and Reserve forces were mobilized at the beginning of FY 1988, they would be able to field approximately 72% of their required equipment (in terms of dollar value), which could be raised to approximately 80% by using substitute items.

We will not achieve the expected progress in reducing equipment shortages in the National Guard and Reserve. Due to budgetary constraints, Total Force equipment procurement planned for FY 1988 is down by more than $22 billion compared to the FY 1988 data in the President's Budget last year. This reduction, which exceeds 20%, will slow the flow of equipment to the reserve components, since a large portion of their equipment comes from redistributed active component stock.

Current Service plans for reserve component equipment procurement are contained in the Department's P-1R report, which accompanies the President's Budget. The report lists the types, quantities, and costs of equipment proposed for procurement for the reserve components. The report identifies equipment procurement of $4.7 billion -- $2.2 billion in FY 1988 and $2.5 billion in FY 1989 -- for the National Guard and Reserve.

The Department of the Army has requested $1.2 billion in FY 1988 and $1.4 billion in FY 1989. The request includes $890 million in FY 1988 and $1,090 million in FY 1989 for Army National Guard procurement and $308 million in FY 1988 and $301 million in FY 1989 for Army Reserve procurement.

The Department of the Navy has requested $191 million for both FY 1988 and FY 1989. The Navy's request includes nearly $42 million in FY 1988 and $28 million in FY 1989 for Marine Corps Reserve procurement and approximately $149 million in FY 1988 and $163 million in FY 1989 for Naval Reserve procurement.

The Department of the Air Force has requested $803 million in FY 1988 and $937 million in FY 1989. The Air Force request includes $553 million in FY 1988 and $683 million in FY 1989 for the Air National Guard procurement and $250 million in FY 1988 and $254 million in FY 1989 for Air Force Reserve procurement.

If we achieve 100% of our current equipment redistribution and procurement plans, substantial equipment shortfalls still will exist. Data from our FY 1988 National Guard and Reserve Equipment Report indicates a shortfall at the end of FY 1990 at about the same level projected in last year's report (i.e., $10 to $11 billion for the 1,240 line items included in the report).

Progress in closing the gap between equipment-on-hand and wartime requirements is becoming increasingly difficult, given the greater competition for limited funds and the growth in the requirement for equipment brought about by modernization and new missions for the reserve components. It is Department of Defense policy that those units that are the first to fight, first to deploy, regardless of component, should be the first to be equipped. We will continue to monitor the distribution of equipment, to ensure compliance with this policy, particularly in the combat support and combat service support units of the reserve components.

National Guard and Reserve Facilities

We have requested $579.3 million in FY 1988 and $522.3 million in FY 1989 for reserve component Military Construction. The FY 1988 program request is approximately $100 million more than the FY 1987 appropriation.

The Office of the Assistant Secretary of Defense for Reserve Affairs participates in the planning, programming, and budgeting process for reserve component Military Construction programs, but it does not direct the Services on what, where, and when to build. Rather, we carefully review the decisions of each component and support those projects that improve mission accomplishment, readiness, and permit realistic training.

We continuously monitor the execution of the reserve component Military Construction programs. Our oversight in this regard has produced a combined reserve component execution rate in FY 1986 that is the highest in the Department of Defense. In order to achieve our first year 100% execution goal, starting with the FY 1990 budget, we will require 65% completion of design work for all reserve component Military Construction projects not later than the OSD/OMB review preceding submission of the budget in January. Additionally, if a two-year budget submission is required, projects for the second year must be 35% complete at the time of the OSD/OMB review.

GUARD AND RESERVE ACCOMPLISHMENTS

Army National Guard and Army Reserve

By the end of FY 1987, 51 percent of the Total Army's combat forces and 79 percent of its aggregate combat support and combat service support will be in the Army National Guard and the Army Reserve. As the Secretary and the Chief of Staff of the Army have pointed out, the Army's reserve components are "integrated into the Active Force to a degree unprecedented in reserve history." The "maturing professional competence" and expertise of the reserve components "fully justifies this role as an essential element of the Total Army."

As a part of the growing partnership, the Army National Guard and the Army Reserve are moving aggressively with a program of modernization that will improve their combat readiness.

The Army National Guard is placing special emphasis on aviation force modernization. Aviation support for Army National Guard infantry divisions will be improved with the activation of divisional combat aviation brigades. Following these improvements, an AH-64 Attack Helicopter Battalion and five aviation headquarters will be activated in the corps structure.

During FY 1988 and 1989, nearly 8,000 personnel and more than 700 aircraft will be added to the aviation force structure of the Army Reserve. Two new attack helicopter battalions equipped with AH-1s (Cobras), two attack helicopter regimental headquarters, and numerous other elements will be added in FY 1988 to Army Reserve aviation forces. In FY 1989, four Army Reserve attack helicopter battalions will be activated and aligned with four active Army Corps.

These structural enhancements to Army combat power are dependent upon full-time personnel for planning, training, logistic, and administrative support. Without an adequate level of full-time support, the assumption of missions by the reserve components as an alternative to expansion of the active Army is not feasible.

We will continue modernization of the Army National Guard, and expect the FY 1990 inventory will include 555 Bradley Fighting Vehicles, 184 Improved TOW Vehicles, and more M60A3 tanks, M-198 Howitzers, Chaparrals, Heavy Expandable Mobility Tactical Trucks, and Commercial Utility Cargo Vehicles. At the end of FY 1986, the Army National Guard had 173 Bradleys and 121 improved TOWs. In FY 1988, the first AH-64 Attack Helicopters will be delivered to the Army Guard, with more scheduled to arrive in FY 1989.

During FY 1988 and 1989, more Army Reserve units will receive M60A3 battle tanks with 105MM guns, thermal sights, laser range finders, and analog ballistics computers; High Mobility Multipurpose Wheeled Vehicles (HMMWVs); M939 Series Five Ton Trucks (a versatile multipurpose truck, available in a variety of body types and classes); and the AN/GYK-29 Battery Computer System, which provides fire control and command information for field artillery batteries.

The Army's reserve components are becoming more involved in training that tests every aspect of their readiness. The Army National Guard participates in field exercises to improve both unit and individual readiness. In FY 1986, 26,717 personnel from 1,107 units and unit cells trained in 35 countries around the world. In FY 1987, approximately 29,000 Army Guardsmen and 22,000 Army Reservists are scheduled to train worldwide.

Army reserve component use of the National Training Center continues. In FY 1987, the first reserve component Brigade (256th Infantry Brigade of Louisiana) will plan, control, and conduct a full training rotation at the National Training Center. Additionally, 14 more combat units will conduct leadership training at the Center.

Naval Reserve

Modernization of the Naval Reserve Surface Force continued with the acceptance of four more FFG-7 Perry Class frigates during FY 1986. With three additional FFG-7's and one FF-1052 Knox Class Frigate transferred during FY 1987, the Naval Reserve Surface Force will operate a total of twelve FFG-7's and seven FF-1052's, with a final mix planned at eighteen and eight, respectively.

The third LAMPS MK I (SH-2F aircraft) squadron came on line in FY 1986. The LAMPS aircraft provide the Naval Reserve Surface Force extended ASW search and attack capability. With eight aircraft per squadron, this program is complete.

Two Salvage ships entered the Naval Reserve Force in FY 1986. Two new Mobile Inshore Undersea Warfare Units have been organized in FY 1987, which are designed to provide mobile, rapidly deployable, surface and subsurface communications in shallow to intermediate depth water. This element of the Naval Reserve will increase from 18 units in FY 1986 to 28 units by FY 1990. In addition, the Naval Reserve will receive all 14 of the new construction MCM-1, Mine Countermeasure Ships, and all 17 of the new MHC-1, Coastal Mine Hunters. The first MCM is scheduled to be transferred to the Naval Reserve in FY 1988 and the first MHC by FY 1992. By 1990, more than 50 ships of the emerging 600 ship Navy will be in the Naval Reserve.

Modernization of Naval Reserve aviation continues. The F-14 fighter was added to the Reserve Carrier Air Wings during FY 1985. The Naval Reserve is completing transition from the A-7B to the more modern A-7E attack aircraft. One squadron received the new F/A-18 in October 1985 and a second Reserve Strike Fighter Squadron began transition in January 1987. The Squadron Augmentation Unit concept initiated in FY 1984 also has been successful in enhancing the training of Naval Reserve augmentation aircrews in the same A-6, F-14, P-3C, SH-3H, S-3, and E-2C aircraft employed by their gaining squadrons. An Airborne Mine Countermeasure Squadron, flying the RH-53D, was commissioned in the Naval Reserve in October 1986 and a second will be activated in FY 1989.

The TACNAVMOD upgrade for the P-3A and B maritime patrol aircraft was completed in 1986, and upgrading of the AQA-7 acoustic processor on these aircraft continues.

These improvements will provide us with an effective reserve component maritime patrol force. A significant step toward achieving this goal was taken with the Naval Reserve's transition to the P-3C aircraft in the FY 1986 and FY 1987 procurement programs. This is especially important, since the Naval Reserve provides 35 percent of the Navy's total maritime patrol capability.

Marine Corps Reserve

In the Marine Corps Reserve, the total wartime equipment requirement is distributed between a peacetime training allowance and equipment stored for mobilization use. More than 87 percent of the equipment required for peacetime training and 78 percent of the war reserve materiel is now on hand. All but 1.7 percent of the total dollar value of equipment required is programmed to be stocked by the end of FY 1990.

Since 1982, procurement and distribution of modern combat equipment in ordnance, communication, motor transport, and engineer commodity areas has increased at an accelerated pace. All major new ground combat systems are programmed for the reserve as well as the active force. Some examples of concurrent fielding are the Logistics Vehicle system "Dragon Wagon," M198 Howitzer, High Mobility Multipurpose Wheeled Vehicle, and TOW 2 (heavy antitank missile system).

Modernization of Reserve aviation continues, and compatibility in Marine aviation is increasing. Aircraft such as the F-4S, CH-46E, UH-1N, AH-1J, and KC-130F are all being flown by both the active and reserve forces.

The Marine Corps Reserve has completed the upgrade of their fighter force with the introduction of F-4's and A-4M aircraft. Current plans are to transition to F/A-18, AH-1T, CH-53E, and MV-22A aircraft upon completion of active force modernization. An attack helicopter squadron will be activated, which will raise Reserve attack helicopter strength to 24 aircraft in 1988. In 1986, the Marine Corps Reserve began operating an aggressor squadron equipped with the F-21A "KFIR" aircraft to provide instruction to active and reserve Fleet Marine forces and Fleet squadrons through simulation of adversary aerial combat tactics.

Marine reservists train in exercises throughout the world with their active force counterparts. During 1987, the Marine Corps Reserve will continue to emphasize integrated active and reserve component training.

Air National Guard and Air Force Reserve

The Air Reserve Forces have continued to accept an increasing share of Total Force missions. The Air National Guard and Air Force Reserve contribute 33 percent of the tactical fighters; 57 percent of the tactical reconnaissance aircraft; 73 percent of the strategic air defense fighters (growing to 80 percent in FY 1988); 79 percent of the Air Force's Special Operations aircraft; 60 percent of the tactical airlift capability; 10 percent of the strategic airlift (projected to increase to 18 percent by FY 89); and 21 percent of the strategic air refueling aircraft of the Total Air Force.

Both Air Reserve Force components are modernizing their tactical fighter forces, replacing older F-4C/D aircraft with the more capable F-4E and F-16 fighters, and F-15's in the Air National Guard. During FY 1987, the Air National Guard will convert two fighter squadrons, one to the F-4E and another to the F-15. In addition, two Air National Guard Air Defense squadrons will be equipped with F-16's. The Air Force Reserve will organize a second F-16 squadron. During FY 1988 and FY 1989, three more Air National Guard and Air Force Reserve units will receive the F-4E; six units will convert to the F-16; and the Air National Guard will convert an additional squadron to the F-15, and will convert four additional air defense squadrons to the F-16. This unprecedented effort to modernize the Air National Guard and Air Force Reserve is not without problems. Although the aircraft conversions are progressing smoothly, these conversions are major consumers of military construction facility replacement funds. For example, during FY 1987, 75% of the Air National Guard and 89% of the Air Force Reserve military construction budgets are dedicated to unit conversions. If this trend continues, the backlog of deferred military construction projects ($1.0B for the Air National Guard and $530M for the Air Force Reserve by the end of FY 1987) will continue to rise, and will detrimentally affect operational capabilities and readiness.

During FY 1987, the four Air National Guard and Air Force Reserve strategic airlift units will receive additional C-5 and C-141 aircraft, and two units will receive new C-130H tactical airlift aircraft. In FY 1988, an additional Air Force Reserve unit will receive new C-130H aircraft, and more C-5A and C-141 aircraft will be transferred to the Air National Guard and Air Force Reserve as the active force acquires new C-5B and C-17 aircraft. During FY 1988 and FY 1989, the Air National Guard will receive ten more KC-135 strategic air refueling aircraft, resulting in five squadrons of ten aircraft each.

One of the more challenging Air Reserve Force programs is modification of existing aircraft. Our objectives are to ensure the combat survivability of the aircraft and to provide engagement capabilities that are commensurate with those of active component aircraft. Currently, 18 modification programs are underway for Air National Guard and Air Force Reserve tactical fighter aircraft. Another 24 programs are under consideration. These combat capability enhancements include items such as new navigation and weapons delivery systems, Heads-up Display, advanced AIM-9L air-to-air missile capabilities, low smoke engines for the F-4, and improved radar warning and countermeasures equipment.

To provide meaningful and realistic training, the Air Reserve Forces completed 187 unit deployments to RED FLAG, overseas deployments, and joint exercises in FY 1986.

Coast Guard Reserve

Coast Guard reservists perform nearly two-thirds of their training by augmenting active duty units, which provides a high peacetime payback for the investment in the Coast Guard Reserve program. In FY 1986, the Coast Guard Reserve provided nearly two million man-hours of reserve augmentation -- up more than 20 percent from FY 1985. Coast Guard reservists also increased their participation in joint service readiness exercises. In FY 1986, more than 3,100 personnel -- 24 percent of the force -- participated in exercises such as PORT CALL, REFORGER, PRESENT ARMS, and OCEAN VENTURE.

The Coast Guard also plans to procure secure communications equipment in order to reduce the critical shortage of equipment required to perform wartime tasks.

RESERVE COMPONENT MEDICAL READINESS

The ability to provide wartime medical care quickly and adequately has been one of the highest priorities of both the Assistant Secretary of Defense (Reserve Affairs) and the Assistant Secretary of Defense (Health Affairs). Members of both staffs serve on all the major medical readiness related groups in DoD and cochair the Reserve Components Medical Council. We are working together to establish the most realistic estimates of wartime requirements for medical personnel. We intend to specify the need by medical specialty, to define the appropriate active/reserve mix, establish procurement and distribution priorities, and estimate evacuation requirements under several different war scenarios. The results of a number of these efforts have been included in the January 1987 Report to Congress on Reserve Components Incentive Programs for Health Care Professionals and the March 1987 report to Congress on Staffing of Critical Wartime Medical Specialties.

Medical Readiness Concerns

The casualty estimating process is the starting point for determining medical force structure, whether it is in the active or reserve components. In prior testimony before Congress, we voiced concern that medical planning has been based on optimistic casualty estimates which projected too few casualties. As key participants, we will continue to review and further refine the process and assumptions used in casualty estimation.

The capability to provide combat medical care must exist prior to the outbreak of war; and, that capability must be moved rapidly to the theater. Otherwise, soldiers who are wounded will die from lack of medical care. For example, in the Korean War, where the lack of adequate medical facilities precipitated a casualty nightmare, as many soldiers died as were wounded in the first month of the war.5/ This was the highest killed-to-wounded ratio since battles of the Civil War. History could repeat itself in a future, short notice, conventional conflict if planning is based on optimistic casualty estimates.

5/ The eventual killed-to-wounded ratio was 1:4.

In 1983, six new programs were established to reduce shortfalls in wartime medical personnel and enhance medical readiness. Specifically, these programs were designed to attract medical school faculty and students into the reserves; to provide flexible training programs compatible with the demanding schedules of civilian medical professionals; to provide annual continuing health care education to each reserve health care officer; to integrate active and reserve forces' medical training; and to integrate active and reserve component medical field training exercises. However, an August 1985 DoD Inspector General audit of reserve component medical manpower found that the effectiveness of its Services' programs to attract health care personnel and improve medical readiness was diminished by the accession of personnel by broad category (physician, nurse, etc.) rather than by specific medical specialty. The Assistant Secretary of Defense (Health Affairs) moved quickly to take corrective action. He directed the Services to discontinue reserve medical personnel accessions in specialties with excess personnel and to reduce current reserve overstrengths in noncritical specialties. He also directed the Services to provide periodic reports on requirements, authorizations, and fill by specialty for both active and reserve components, including the Standby Reserve and retirees.

On the equipment side, the paucity of deployable hospital equipment continues to cripple reserve hospitals and will do so until the Deployable Medical Equipment Sets (DEPMEDS) reach reserve hospital units. The ability of our reserve component hospitals to provide in-theater hospital care in the early days of a short-notice, conventional conflict is not significantly better today than it was at the beginning of this decade. This will necessitate out-of-theater evacuation of soldiers who otherwise could be returned to their units after a brief period of hospitalization in theater.

DEPMEDS fielding begins in 1987, but it will take at least six years to complete this program. While hospital equipment shortages eventually can be filled by DEPMEDS, this will only occur if the DEPMEDS program is fully funded. For example, unless the $112.4M cut from the Army's FY 1987 DEPMEDS procurement program are restored, and future funding assured, medical readiness will be the Achilles heel of combat capability.

The Army will procure and field the largest number of DEPMEDS. We and Health Affairs are working closely with the Army leadership to examine its DEPMEDS distribution plans for active and reserve units. The process is a complex undertaking, akin to equipping more than 150 battalion-sized units. To maximize our combat care capability, we believe early deploying units that lack equipment, regardless of component, should be equipped before units that are combat ready, but whose equipment needs modernizing.

Management Information Innovation

The Office of the Assistant Secretary of Defense for Reserve Affairs has developed two computer based information management systems to evaluate reserve unit readiness. These systems permit an unprecedented level of analysis of reserve component medical unit readiness status -- problems, causes, and potential corrective action.

Particularly important is the system we call the Reserve Unit Priority System (RUPS). This computer data base gives us the ability to access reserve component readiness data, including unit equipment status; manpower requirements, authorizations and fill; skill level requirements; and unit mobilization and mission assignments. The RUPS data base is compiled from information in the Status of Resources and Training System (SORTS), previously called the Unit Status and Identity Report (UNITREP), and is updated quarterly.

We also have developed a more detailed auxiliary system in order to examine and evaluate the manpower status of reserve medical units. This system is called the Reserve Medical Management Information System (REMMIS). It permits comparison of wartime and peacetime authorizations with actual manning levels. We also can use REMMIS to analyze skill specialties, specialty matches, attributes of skill levels, and shortages/overages against peacetime and wartime authorizations. This data base is complete for the Army Reserve, Army National Guard, and the Air Reserve Forces. The Navy Reserve data is under development.

To offer the Subcommittee an example of the capabilities of the REMMIS, I offer the following analysis. REMMIS data for September 1985 indicates that the Army National Guard is manned at 95 percent of the wartime requirement for medical personnel. The Army Reserve is manned at 85 percent, the Air Guard at 95 percent, and the Air Force Reserve at 91 percent. However, if we examine the manning of individual critical specialties (such as surgeons, operating room nurses, and nurse anesthesists) through REMMIS, we find that the percentages are down significantly; and furthermore, of those personnel assigned, even fewer are assigned in their primary specialty.6/

	ARMY RESERVE COMPONENTS		AIR RESERVE COMPONENTS	
Skill	% Manned	% Assigned Primary Skill	% Manned	% Assigned Primary Skill
Physicians	77	48	79	86
Surgeons	66	36	29*	72
Nurses	80	63	85	82
OR Nurses	70	57	74	87
Nurse Anesthetists	46	70	45	94
Technicians	88	60	97	82
OR Technicians	86	58	94	86

*Note: Additional physicians with surgical specialties are under the primary Air Force specialty designation as flight surgeon.

6/ This data reinforces the 1985 audit findings concerning the need to recruit and man to specific specialty needs.

Using October 1986 data, we examined the resource status of Army National Guard and Reserve, and Air National Guard and Air Force Reserve medical units. While specific data are classified, they indicate two important facts:

1. Reserve hospitals have the lowest resource status of any service support unit and are virtually incapable of performing their missions due to equipment shortages, personnel shortages, and specialty skill mismatches.

2. The higher readiness status reported for non-hospital medical units reflects somewhat better equipment and personnel availability. In particular, the Army's combat zone reserve medical units have benefited from successful distribution of equipment such as battalion aid station and medical clearing company equipment sets.

This current reserve component hospital readiness situation was confirmed by the Assistant Secretary of Defense for Reserve Affairs last year, when he met with 15 reserve component medical unit commanders. Of the 11 hospitals they represented, eight of which were early deployers to NATO, none had sufficient equipment to perform its wartime mission.

With the information management capability of RUPS and REMMIS, we can address personnel specialty shortages and equipment priority issues much more effectively. These two information systems were instrumental in developing the data necessary to identify specialty skill qualification problems in the Army reserve components. As a result, the Army has committed additional funds for equipment and decentralized reserve training, and will separate or transfer reserve members who cannot or do not qualify in their skill within established time limits.

Medical Personnel Strengths

At this time, there are nearly 78,000 medical personnel in the Selected Reserve. As shown in Table 16, this includes more than 5,000 physicians, more than 9,000 nurses, and nearly 54,000 enlisted medical technician personnel.

TABLE 16

Selected Reserve
Medical Personnel Strengths*

SPECIALTY	ARNG/USAR	USNR	ANG/USAFR	TOTAL
Physicians	3,045	972	1,236	5,253
Nurses	6,336	882	2,551	9,769
Other Professionals	7,098	1,175	1,299	9,572
Technicians	36,945	7,645	9,169	53,759
Totals	53,424	10,674	14,255	78,353

*(As of March 31, 1986)

As shown in Table 17, there are 800 surgeons, 158 anesthesiologists, 1,432 emergency physicians, 699 operating room nurses, and 2,394 operating room technicians within these general personnel categories.

TABLE 17

Selected Reserve
Critical Medical Skill Strengths*

SPECIALTY	ARNG/USAR	USNR	ANG/USAFR	TOTAL
Surgeon**	498	153	149	800
Anesthesiologists	79	40	39	158
OR Nurses	482	58	159	699
Nurse Anesthetists	287	35	90	412
OR Technicians	1,872	49	473	2,394

*As of March 31, 1986
**Includes Thoracic, Neuro, Orthopedic and General Surgeons

In addition to Selected Reserve personnel, there are 2,054 surgeons, 667 operating room nurses and 3,218 operating room technicians available from the IRR, Standby Reserve and military retirees

TABLE 18

IRR Standby Reserve and Retired
Critical Medical Skill Inventories*

SPECIALTY	IRR	STANDBY	RETIRED	TOTAL
Surgeons**	717	806	534	2,054
Anesthesiologists	169	204	67	440
OR Nurses	196	223	248	667
Nurse Anesthetists	105	98	237	440
OR Technicians	1,028	6	2,275	3,218

*As of March 31, 1986
**Includes Thoracic, Neuro, Orthopedic and General Surgeons

Since 1983, the number of physicians in the Selected Reserve has increased by 22.7%, and the number of nurses has increased by 31.8%. Strength levels also are up in the IRR. The number of surgeons, however, has decreased by 6.3% since 1983.

TABLE 19

Ready Reserve
Medical Personnel Strength (1983-1986)

	SELECTED RESERVE			INDIVIDUAL READY RESERVE		
Skill	1983	1986	% Growth	1983	1986	% Growth
Total Physicians	4,280	5,253	22.7	2,442	4,144	70.0
Surgeons*	854	800	-6.3	396	717	81.0
Total Nurses	7,408	9,769	31.8	2,769	3,788	36.8
OR Nurses	577	699	21.1	152	196	28.9
Nurse Anesthetist	355	412	16.1	91	105	15.4
Total Enlisted	52,045	53,759	3.3	15,138	22,697	49.9
OR Technicians	2,441	2,394	-1.9	539	1,028	90.7

*(Includes Thoracic, Neurosurgery, Orthopedic, and General Surgery)

Wartime Requirements for Medical Personnel

In the early stages of conflict, shortages of medical personnel required for hospitals and units must be filled from the IRR, Standby Reserve, and retired military populations. Furthermore, REMMIS data indicates the need to establish deployment related assignment priorities for medical professionals. For example, manning in Army reserve components medical units tasked for early deployment to NATO is no better than it is for all Army reserve component medical units. There are a total of 12,838 medical personnel authorized for all Army reserve component combat zone hospitals. Of these, 2,830 are designated for early deployment to NATO. The percentage of personnel assigned is actually slightly lower for early deploying units (87% vs 88%), and the percentage of personnel serving in their primary skill is similarly lower for early deploying units (57% vs 58%).

TABLE 20

Army Reserve Components
Comparison of Percentages of Medical Personnel Fill
(NATO Early and Late Deploying Units)

	NATO EARLY		LATE DEPLOYING	
Specialty	% Manned	%Assigned in Primary Skill	% Manned	%Assigned in Primary Skill
Physicians	81	38	78	42
Nurses	77	74	82	71
Enlisted	89	56	89	57
Total	87	57	88	58

We have a persistent and serious shortage of physicians and nurses, as well as specialties in these fields, as indicated in Table 21.

TABLE 21

Wartime Medical Skill Shortages*

Skills	# Shortages	% Shortages
Physicians	7,100	23
- General Surgeons	1,920	56
- Anesthesiologists	1,315	67
- Orthopedic Surgeons	2,030	72
Nurses	31,000	53
- OR Nurses	2,200	55
- Nurses Anesthetists	1,715	57
Enlisted	73,000	29
Total Physicians, Nurses, and Enlisted	111,100	35

*Shortages in current assets from active, reserve, and retiree populations, using Service mobilization yields against full mobilization requirements at peak demand after M-Day.

Programs to Reduce Personnel Shortages

The Department has directed the Services to reduce the wartime shortfall of critical physicians and nurses by 20 percent each year between FY 1988 and FY 1992, and DoD added funds to each Service program to support this goal.

Each of the Services has committed significant recruiting funds and manpower to increase medical manpower. All Services plan substantial growth in the number of medical recruiters beginning in FY 1988. The recruiters' efforts will be targeted toward wartime specialty requirements for officer and enlisted health professionals.

Two personnel incentive programs, designed to increase the numbers of critical wartime specialists in the reserve components were approved by Congress during FY 1986. The Congress authorized a stipend program for certain specialists in training and extended the educational loan repayment program to doctors and nurses of the Selected Reserve who serve in critically short specialties. I am convinced these programs will greatly assist us in reducing Selected Reserve medical wartime shortages. These incentives are available to commissioned officers who are surgeons in residence, nurses in programs to become anesthetists or operating room nurses, and to qualified practitioners in these specialties. The Services estimate that by fiscal year 1989, these incentive programs will yield an increase of approximately 3,000 physicians and nurses.

Both the Assistant Secretary of Defense (Health Affairs) and the Assistant Secretary of Defense (Reserve Affairs) are committed to working with the professional organizations of the American Medical Association and the American Nurses' Association to increase physician and nurse participation in the reserve forces. We also are encouraging the Services to have reserve units and individuals train with active component counterparts; to have reserve forces participate to the maximum extent possible in command post and field training exercises; to provide medical personnel with flexible reserve training opportunities for programs such as WARAMS (Wartime Alignment of Reserve and Active Medical Systems), PRIMUS (Physician Reservists in Medical Universities and Schools) and REFLEX (Reserve Flexibility, which provides reserve pay and retirement points for approved individual training in lieu of scheduled unit training).

These programs, and the ability to identify where the shortages are, will enable us to begin to solve the problems and reduce the shortages.

Key Federal Employee Screening Program

During the 1984 Key Federal Employee Screening program, we reviewed the availability of reserve and retiree military health professionals employed as civilians by the Veterans Administration (VA). At the time, the VA was concerned that the potential loss of up to 17,000 of its civilian employees to a military mobilization would severely tax its ability to provide the DoD with 32,500 hospital-beds in wartime. In December 1985, the VA determined that its Ready Reserve employees could be made available for mobilization without exception. In addition, the VA's most recent review of military retirees and Standby reservists stated that very few were critical to VA wartime operations. The VA has assured the Department of Defense of the availability of all of its Ready Reservists and the majority of its Standby Reservists and military retirees. This represents 90 percent of the personnel in these categories. The VA annually reviews its capability to operate without reservists by requiring each facility manager to develop contingency plans to replace reservists in key positions.

While the loss of health professionals brought about by a military mobilization would definitely strain its system, the VA has reaffirmed its intention to provide DoD the 32,500 hospital-beds in wartime.

To make beds available, VA Medical Centers will first, through normal processes, discharge patients at the completion of treatment and only admit those with highest priority (service-connected) or those in need of emergency care. Next, VA beneficiaries will be transferred from VA facilities that would serve as primary DoD receiving hospitals, to other VA facilities. If needed, VA would transfer patients to private hospitals under the authority of 38 USC 5011(b).

Age Requirements for Initial Entry and Continued Participation

Increases in the maximum age for appointment and retention of health professionals has been encouraged by the Department. As a general rule, limits on the maximum age at which individuals may be appointed as officers are essential to force management (i.e., to maintain a mix of age, grade, and experience, and to ensure the investment in training can be amortized). However, the appointment of health professionals in their 40s and 50s is warranted in order to reduce shortages of critical wartime personnel. The Department of Defense is working with the Services to examine standardizing the age for initial appointment at 48 years and the maximum age for reserve participation at age 67. This adjustment should enable the Department to increase the pool of eligible qualified professionals in the specialties needed to meet mobilization medical manpower requirements.

LEGISLATIVE PROPOSALS

The President has directed that the Sixth Quadrennial Review of Military Compensation (QRMC) concentrate on reserve component compensation. We look forward to this review and the positive influence it will have on future DoD legislative proposals. In the meantime, we are resubmitting the Reserve Officer Personnel Management Act (ROPMA) for your consideration.

ROPMA was forwarded to Congress in December of 1985 and was included in the Department of Defense legislative package for the 100th Congress. In addition to resolving some critical reserve component management problems, ROPMA is the first comprehensive revision to the Reserve Officer Personnel Act (ROPA), which was enacted in 1954 and provided the basis for appointment and career management of reserve officers. Only piecemeal adjustments to ROPA legislation have been made during the ensuing 30 years. ROPMA is designed to provide compatible personnel systems for all reserve officers, whether on the active duty list or the reserve active status list. It is closely patterned after the Defense Officer Personnel Management Act, which was enacted in 1980. ROPMA will revise the laws governing reserve appointments, promotions, separations, and transfers to the Retired Reserve. It will allow the long-range planning essential to providing reserve officers with attractive and meaningful careers and help attract and retain officers of the proper age and grade who possess the skills and experience needed by our reserve components.

SUMMARY

In conclusion, Mr. Chairman, our unprecedented dependence on the reserve components under the Total Force Policy mandates that National Guard and Reserve units and members must be prepared to augment and expand our forward deployed forces rapidly.

There is no question in my mind that the war-fighting capability and readiness of our reserve components have improved significantly during the last six years. We have more people of higher quality. We have more and better equipment. And, we have better and more realistic training than at any time in our history.

While some problems remain, I am confident that as we continue to improve the effectiveness of the National Guard and Reserve, we will be improving the nation's total defense posture. That is, and must remain, our first and foremost aim.

Mr. Chairman, this completes my testimony. Thank you for the opportunity to appear before this committee.

DENNIS R. SHAW
Principal Deputy Assistant Secretary of Defense
(Reserve Affairs)

Dennis Shaw was appointed Principal Deputy Assistant Secretary of Defense (Reserve Affairs) on June 6, 1984. This office is responsible for all policy matters relating to reserve component manpower, personnel and compensation, research, studies and evaluation, operations, training, mobilization, equipment, material, construction, installations and facilities, readiness and sustainability. Mr. Shaw supervises the daily functioning of a diverse staff of more than 70 personnel, including four Deputy Assistant Secretaries, four Directors, career and noncareer civil servants, and representatives from all seven reserve components and the four active military Services. In addition, Mr. Shaw works frequently with other Federal agencies, the Congress, state governors, business and civic leaders, the media, foreign officials and the public in support of the Department's policies and programs for the 1.5 million members of the National Guard and Reserve. He has extensive experience in high level Defense working groups, has testified before key congressional committees, has addressed military and civilian audiences throughout the United States; and, has given numerous media interviews.

Born in Los Angeles, California, in 1947, Mr. Shaw was designated a Distinguished Military Cadet and Distinguished Military Graduate at the University of California at Los Angeles, concurrent with the award of a Baccalaureate in Political Science in 1969. In 1970, he earned a Master's Degree in Strategic Studies and Defense Analysis at the University of Lancaster, Lancashire, England. Mr. Shaw then served in the United States Air Force for the next seven years with assignments in the areas of administration, training, operations, intelligence, executive support, and command. He resigned his Regular Air Force commission in 1977 and has been a member of the Air Force Reserve ever since.

Mr. Shaw received his Juris Doctorate from the University of San Diego School of Law in 1980. He has practiced and taught law in Southern California; and prior to assuming his current position, he founded and was a partner in a law firm in La Jolla, California, and served for two years as Principal Director to the Deputy Assistant Secretary of Defense (Reserve Affairs).

Mr. Shaw and his wife, the former Mistie Turnbough of Hacienda Heights, California, were married in 1973. They have two sons, Casey Kristopher, age 10; Aaron Edward Timothy, age 5; and a daughter, Jaimie Jean, age 3. They are permanent residents of San Diego and currently reside in Alexandria, Virginia.

NATIONAL GUARD

STATEMENT OF LIEUTENANT GENERAL HERBERT R. TEMPLE, JR.

READINESS OF GUARD UNITS

Chairman STENNIS. Let us go now to another witness. We have with us the chief of the National Guard Bureau, Lieutenant General Herbert R. Temple, Jr. General, you may proceed. I am not trying to cut you off, but you know we have a number of witnesses, so I would appreciate your trying to limit yourself to the general time constraints I mentioned earlier.

Lieutenant General TEMPLE. Thank you, Mr. Chairman. Thank you for the opportunity to talk about your National Guard.

As you know in the last several years we have gone through more changes and improvements in the National Guard than any time in the previous history of our organization. It all started in 1971 with the development of the total force concept. That called on the Guard and the Reserves to play a greater role in national defense.

Then again in 1973 when the people, through their legislative representatives, elected to abolish the draft, reliance on the reserve forces became more than merely a concept. It became a crucial element of our national security program.

Current requirements call for all Air Guard units to be able to mobilize, deploy and be ready to fight within 72 hours. Likewise many Army Guard units must be in place overseas within the first days of any conflict.

In 1976 Army Guard units averaged 90 to 120 days before they were being required to deploy and fight. Today that average is down to about 60 days. But keep in mind there are many who will be there in a matter of just several days.

The goal for 1992 is to be able to deploy the majority of the force to fight any place our national interests are threatened within 30 days. If we ever have conflict again, that is, major conflict, 70 percent of the deploying forces will be reserve forces.

Chairman STENNIS. What percent was that?

OVERSEAS TRAINING FOR GUARD UNITS

Lieutenant General TEMPLE. Seventy percent. This is why we so badly need realistic overseas training.

Overseas training forces us to mobilize, to practice the mobilization process, to deploy and to train with our active force counterparts in real world settings, in the environments in which we may have to fight. This year the Army National Guard and the Air National Guard will send more than 50,000 members of the force to more than 50 countries around this world.

MANPOWER AND EQUIPMENT

Besides training, the other key components of readiness are manpower and equipment. In 1979 the active and reserve forces bottomed out, reaching their lowest manning levels in years. In response, Congress mandated the testing of recruiting and retention bonuses in the Guard.

These tests were expanded in succeeding years. These actions as well as labor incentives, such as the new G.I. bill, worked. Since 1979 the Army Guard has added more than 100,000 soldiers, in the Air Guard 20,000 airmen.

And the quality of these young men and women who are joining our force has improved over those of subsequent years. Also in terms of intelligence, education and physical fitness.

There has also been a big improvement in the equipment we are receiving. The first to fight, first to be equipped philosophy has meant many of our units are receiving the latest weapons at the same time as their active counterparts do.

The Army Guard specifically has achieved great success in intensively managing techniques to make good use of the limited resources we receive. The Army Guard has used the equipment management analyst program to manage the distribution of equipment between existing units.

We have been so successful at it that we have improved the number of units reporting ready to fight, because of equipment on hand, by 11 percent in the past year. That is significant progress and we feel that is meeting the objectives which the Congress has set out for us.

READINESS

We feel very good about the progress we have made in improving our readiness. There is no doubt this is the most combat ready National Guard in our entire history. But as you know, the total force strategy requires greater readiness. That, coupled with a shrinking budget and manpower projections, it means we will have to face some very great challenges in the future.

In terms of equipment, the challenges are significant. Last year the Army distributed $1.8 billion in equipment to the Army National Guard. However, force structure changes and a shortage of equipment on hand leaves the Army Guard $10 billion short of its fiscal year 1987 wartime requirement.

Critical shortages exist in communications, air defense equipment, repair parts, helicopters, the M113 family of vehicles, and trucks. These are areas in which your dedicated procurement program has proven to be helpful in the past and we hope will be helpful in the future.

AIR NATIONAL GUARD

On the Air National Guard side, the top priority is to upgrade the tactical airlift force that is so key to fast deployment. Here we need to replace 30 year old C130A aircraft with modern systems.

Also our aging C-131 operational support aircraft need replacement. For us to execute our combat mission we need to replace six of them as rapidly as we can.

The situation in our aerospace rescue and recovery unit concerns us. We need to replace these pre-Vietnam era helicopters with modern systems, now. The MH60 helicopter is our choice for the combat rescue mission.

Mr. Chairman, this has been merely a brief report on where we are today and what we need to meet the requirements of the future. We feel very strongly that we are serving our country well. We also feel that if you continue to support us, your citizen soldiers and airmen will not let you down.

We have formal statements for entrance into the record and request, sir, that you so enter those. That concludes my statement.

Chairman STENNIS. Without objection your additional statement for the record will be entered in the record at this point.

[The prepared statement of Lieutenant General Temple follows:]

PREPARED STATEMENT OF LT. GEN. HERBERT R. TEMPLE, JR.

CHIEF, NATIONAL GUARD BUREAU

Much has been made lately, and rightly so, of the National Guard celebrating its 350th anniversary. However, despite the Guard readily being acknowledged as one of our most venerable institutions, its role in defending the Nation is unknown to many people. This could lead to misinformed perceptions that affect the National Guard's ability to fulfill its important new role in national defense.

Many Americans still think the National guard is a state militia employed only in local emergencies and disasters. That is only partially true because the new roles and missions in national security, both for our soldiers and airmen, although they have changed drastically, are not always portrayed to our citizens. When The Total Force concept was conceived in 1971, this Nation's leaders decided that the reserve forces, including the National Guard, should become an integral part of our defense. It was conscious decision made by the Department of Defense (DOD), and the executive and legislative branches of government to increase the Guard's national security role. In essence, their intent was that Guard and reserve components of the military departments would be better trained and equipped to fulfill national defense requirements and share greater defense responsibilities. The concept was implemented as a policy, but little improvement resulted, primarily due to a lack of adequate equipment, financial resources and commitment of the national leadership.

As American troops were withdrawn from Vietnam in 1973, the people of our nation, through their elected federal legislators, abolished the draft. America made a conscious decision to move to an all-volunteer force -- a posture requiring the federal government to maintain America's defense using a military force composed of volunteers. The decision was a pragmatic one because it offered a realistic alternative to conscription and reduced the great cost required for a large standing defense force. It also was more in keeping with America's tradition of a small standing force augmented by citizen-soldiers. However, in the ensuing years, the number of personnel on active duty declined dramatically and resources available to the military shrank. Concurrently, the strength of the Guard and Reserve forces decreased. By 1979, Active military end strengths "bottomed out" and Army Guard strength hit an all-time low of 345,528.

Thanks to Congress, steps were already being taken to reverse this trend. Interested in increasing the size of the force, Congress, in FY 78, directed the Guard to test a reenlistment bonus. As interested in improving recruiting as they were in retention, Congress, in FY 79, directed the Guard to offer an enlistment bonus test. And for the first time, Congress authorized the Army Guard to hire a significant number of full-time recruiters and retention non-commissioned officers. Because the Guard didn't have enough money to go around, the first incentives went to early deploying units and soldiers in critical job categories -- infantry, armor, artillery, medical, and some military police, as well as key flying units. By FY 81, there were incentives for all critical job categories and early deploying units. Later, Congress further increased incentives, as well as the number of recruiters and retention NCOs. The "tests" worked. Recruiting and retention have improved considerably. The proof is that in 1986, the Air Guard and the Army Guard have scored the highest retention rate of any of the Reserve forces. Why this success? Obviously, incentives and effective retention programs contribute to the success, but I believe that our members are staying because their expectations of military service are being satisfied: better training, more and modern equipment, and recognition that they are key players in our national security efforts.

Although the Guard historically had played a major role in most of this nation's conflicts from the Revolutionary War to World War II and Korea, never before had Army Guard units been so thoroughly integrated into war plans that called for their commitment with and in some cases before Active Components. In 1975, there were no main guard elements deploying before 60 days. The assumptions were different: there was a longer warning time in Europe, the Active forces and our allies could contain the enemy longer, the lift capabilities were inadequate and there was little in theater sustainment for our forces. Much has changed: The threat is larger and stronger, more modern and better supported.

The containment of aggression in Europe clearly depends upon rapid reinforcement of NATO forces. The survival of our servicemen and our allies deployed in Europe is directly linked to the ability of our reserve forces to meet critical deployment schedules and the assurance that once committed they can fight effectively. Lift and sustainment have improved and guardsmen are actively participating in mobilization and deployment exercises and seeing for themselves the importance of their service to their country. But with this reliance upon the Guard and REserve comes a realization that the practices of the past - low levels of training, comfortable annual training periods, leisurely mobilization with time to train, equipment to be distributed, new personnel to fill out units, and opportunities to weed out the unfit - have passed. In today's environment, we are either ready in peacetime or we don't be ready in time of conflict.

Clearly, the Guard has become a key player in national strategy, deterring attack, reacting globally, and preparing to defeat any enemy. This commitment is magnified because in this period America's global military responsibilities have grown in the face of increased threats to our vital interests. Our role requires the capability to project our forces to many parts of the world besides Europe, such as Asia, the Middle East, Central America and other Third World countries. These places, often remote, affect the economy, stability and future security of our nation.

Thanks in large part to funding provided by members of Congress, who were responding to the greater national-defense role of the Guard, the growth of the Army Guard has been phenomenal. In 1979, the paid end strength of the Army National Guard was 345,528. In the next six years, the Army National Guard gained more than a 100,000 soldiers, having a paid end strength of 446,928 as of January 31, 1987. This makes it the world's eleventh largest army. The Air National Guard experienced similar growth during the same period, going from 93,379 to 112,592, making it the fifth largest air force in the world. Even though these achievements in strength are noteworthy, the Army National Guard failed to meet its paid end strength objective in 1986 by 4,302. Recruiting in today's strong economy is difficult and requires attractive incentives, sound marketing and advertising along with a professional recruiting force.

I urge you to continue your support for the Guard's strength increases. It is simply good business.

The average guard/reservist's salary -- roughly $7,000 -- is much less compared to that of his active counterpart (officers and enlisted combined_ -- $30,000. These figures, derived from the Office of the Assistant Secretary of Defense for Reserve Affairs, include military base pay and retirement benefits. They show how a larger Guard role in national defense saves the taxpayers money.

What is becoming evident is the significant impact the new GI Bill is having on retention and will have eventually upon recruiting. This incentive, which Congress has provided, not only brings and keeps people in the Guard but provides the basis for giving our Guard and our nation stronger, more productive citizens in or out of uniform.

However, manpower and resources mean little if we don't learn how to use them in the complex scenarios of the modern battlefield. This reality requires that Guard soldiers and airmen receive the absolute best training we can provide.

Before we discuss training, it is important to see the nature of the threat, for it is the threat that determines training and other aspects of readiness. As an integral part of the Total Force, the Guard has responsibilities for the full range of potential threats, including strategic, tactical, conventional, and terrorist (low-level). Our area of responsibility as part of the Total Force is literally most of the world, with special emphasis on Europe, Asia, the Middle East and Central America, as well as other volatile areas of the world.

The main potential enemy, the Soviet Union, is formidable indeed and fully capable of launching major attacks quickly with rapid reinforcement of reserves. Total Soviet military strength is about 5.7 million. Of these 5.7 million 2.1 million are active reservists compared to our 1.6 million. In the Soviet Union, all eligible Soviet youths, by law, must serve at least two years of active duty. Conscripts are subsequently discharged into the reserves. Thus, the Soviets have a manpower base of 55 million men between the ages of 18 and 55. Of this base, 9 million have been discharged from active duty in the last five years, and periodically must undergo reserve training. Since only 2.1 million reserves are needed to bring the Soviet Armed Forces up to full strength, there is a ready, trained pool of potential reserves to create new units and provide replacements.

While mobilizing the more than 200 divisions of the Soviet Armed Forces would be difficult, their national mobilization plan would assimilate their reserves, train them for combat if necessary, and be ready to conduct offensive operations in a matter of days. The Soviet forces would have enough available theater logistic stockpiles of supplies and ammunition to support Warsaw Pact military operations against NATO for 60 to 90 days.

Besides Europe, Soviet heavy military forces are deployed for operations in Northeast Asia and Southwest Asia. The size and combat power of these forces continue to increase under a program of expansion and modernization which began more than two decades ago. The Soviet goal is to execute "Theater Strategic" operations. These operations call for successive multiple front operations for 20-30 days, at depths up to 720 miles and frontages up to 430 miles, in nuclear, chemical or conventional environments.

There are also three Third World regions noncontiguous to the USSR that are areas of U.S. Soviet competition. These are Southeast Asia, Central America, and Sub-Saharan Africa. The size and quality of Soviet light forces for projection into these areas, and their associated strategic lift have increased greatly over the last decade. These capabilities include Soviet naval forces, naval aviation, amphibious forces, airborne troops, and transport and strategic aviation. To further support their global aspirations, the Soviets, the Soviets also project military power beyond the periphery of the USSR through the provisions of arms and advisors, access to overseas facilities, support to client states, "wars of national liberation," and use of client-state forces.

The threat of terrorism will continue to increase in both frequency and severity. The terrorist threat is global and includes this country. As acquisition of weapons of greater destructive potential becomes more desirable to terrorists, and as the goals of terrorists become more radical, our Armed Forces will become even greater targets for terrorist action.

It is against this backdrop that training of the National Guard must be considered, for these are the threats the Guard, as part of the total Force, must be prepared to deter. The Guard must play an integral role in achieving the following objectives, 1) defend North America; 2) deter and, if deterrence fails, defeat a Warsaw Pact attack on NATO countries and restore territorial integrity and security; 3) deter Soviet aggression in Southwest Asia and protect U.S. and Western access to adequate supplies of Persian Gulf oil, also, deter Soviet aggression in the Pacific; 4) help developing nations in the Western Hemisphere, Europe, Asia and Africa defend against Soviet-sponsored or surrogate aggression; and 5) reverse the geographic expansion of Soviet contro, and other hostile and military presence throughout the world, particularly where such presence threatens the geostrategic position of the United States.

To help achieve these objectives, the Army Guard over the last four years has been focused on accelerating the mobilization and deployment process. Consequently, the entire nature of the Army National Guard has changed. In contrast, the Air Guard effectiveness developed earlier. That's because it's been more closely related to the Air Force mission for some time, so its rapid mobilization capability came into fruition before the Army Guard's. Second, the size and complexity of the Army Guard's mobilization and deployment have required more time and resource allocation.

Since implementation of Capstone in 1979, the Army Guard relates its wartime missions to specific deployment dates, times and places of employment. This causes us to conduct training in a way our forefathers never had to address. The training of the Army and Air

Guard today demands the same degree of professionalism in peacetime that would previously have been expected only in wartime. The transition from peace to war is now measured in hours and days.

Most Air Guard must be mobilized within 72 hours. Likewise, many Army Guard units must be in place overseas within the first days or war. In 1976, Army Guard units averaged 90 to 120 days to deploy to fight. Today, they average about 60 days. The goal for 1992 is to be able to deploy the majority of the force to fight overseas within 30 days. Of the some 1,800 units scheduled to mobilize in the Army Guard, war plans call for 22 to deploy overseas within 24 hours. Another 447 are to be in place within 30 days. More than 1,200 are slated to be in position in 30 to 90 days.

Large groups such as brigades and divisions require the most planning and effort to mobilize. Of our 10 divisions, four are supposed to be in place between 30 and 60 days. Five more must be ready to fight overseas between 61 and 90 days after notice. Eight of the 14 separate brigades must be ready to fight in less than 60 days. By the way, these schedules leave almost no time for additional training after mobilization.

In essence, our war plans call for our divisions, brigades and battalions to arrive on the battlefield prepared to fight. The plain truth is that if they aren't ready, we lose the conventional war. So units must train to fight in the same large-scale configurations required in war.

The ability to achieve this degree of combat effectiveness requires Congress's continued support for school and special training funds to insure that our soldiers and airmen possess the requisite technical skills to employ modern, high technology equipment and support systems. We need your support to resource training of our large formations at places where the units full range of potential fighting capability can be tested, where commanders and staffs can practice real-distance command and control of their units, in scenarios that permit support troops to operate and maintain equip;ment in as close to combat conditions as possible. If timely and effective mobilization and deployment is a key element of our strategic planning, then it behooves us to be schooled and practiced in the art.

Accordingly, we have geometrically increased our overseas training for both the Army and Air National Guard. Since 1976, the Army Guard has increased the number of soldiers deploying overseas almost 10 fold. Last year, over 30,000 soldiers trained in 38 countries in all the previously mentioned strategic areas of the world. And larger units are deploying overseas. At last year's Reforger exercise with our NATO allies in Europe, Wisconsin's 32nd Mechanized Infantry Brigade became the first Guard unit of this size to deploy its equipment and soldiers overseas for training. This followed a full Wisconsin mobilization of Guard resources, which made this combined mobilization-deployment the first Army Guard training of this magnitude. Since 1983, nine Guard battalions have trained at the National Training Center. At the higher division level, California's 40th Mechanized Infantry Division leads the way followed by the Texas 49th Armored Division in proving our ability to train at this level in peacetime. In FY 88, the 47th Division of Minnesota, Iowa and Illinois is scheduled for division-level annual training via an innovative satellite link to coordinate three major training sites. This is a great start, but we must train to mobilize and deploy at those levels prescribed in our war plans.

On the Air side, the last decade has seen a quadruplng of airmen training overseas, with more than 17,000 going to 17 countries in 1986. This doesn't include the many Air Guardsmen and units which for years have been actively fulfilling Air Force real-world commitments.

Because of the sophistication of their weapons and equipment, members of the Air Guard are mainly trained to hone technical skills. These are expensive skills to keep honed and exercised.

The Army Guardsmen must learn technical skills, too, they also have to learn how to survive on a very deadly battlefield. Recognizing that as we train units to meet war plan requirements, we must be certain that small team and individual skills are learned and sustained. To do this, we have established training programs at both Gowen Field in Idaho for tankers through the Tank Commanders Course, and the Battle Skills Course at Little Rock, Ark., focused on training in infantry skills for all military specialties. These courses permit our soldiers to stay proficient in essential combat skills at courses designed to accommodate to their available time. We encourage attendance at the Air Assault Courses and other Army and Air Force courses that improve fighting capabilities. The Key Personnel Upgrade Program is ideally designed to give Army Guard members additional experience in their military speciality alongside their active counterparts overseas and in CONUS. Last year, over 25,000 Guardsmen took advantage of this program.

Because members of the Guard are only required to train 39 days a year, they have to make the most of their training opportunities. The key to giving guardsmen quality training and leadership is to maintain a highly skilled, full-time force of Active Guard/Reserves, military technicians, active military personnel and civilians. full-time personnel help organize, administer, recruit and train all Guard members. Full-time Army Guard support is projected to reach 53,379 by the end of this fiscal year, a substantial increase from the full-time force of 27,688 in FY 74.

The Air Guard's full-time strength is projected to reach 30,459 this fiscal year, making up about 26 percent of the Air Guard's force.

These are but some of the initiative, detailed in the Army and Air Guard congressional reports. I am often asked if I have confidence that guardsmen training only a relatively few days a year can be entrusted with national security responsibility. Although guardsmen are only required to train 39 days a year, most actually go above and beyond the call of duty. The availability of school and special training funding provided by Congress has enabled the average Army Guard enlisted soldier to train 47 days a year, the average officer, 80 days. That guardsmen currently serve between seven and eight years means they cumulatively give the Army Guard an experienced force better prepared than any peacetime force in our history. Just multiply those 47 and 80 days by eight and add four to six months for basic and advanced individual training That is why retention is so important. As more and more Guardsmen experience mobilization and deployment exercises, along with environmental training in areas of potential wartime assignment, and as these varied military experience accumulate, the professional military differences between regulars and reserve-force personnel are narrowed.

Air Guard members have even more experience, as 60 percent come from the Air Force. Proportionally, there are more airmen still in flying billets who are Vietnam veterans with 2,000 hours flying experience who are in the Guard than the Air Force. We are giving the American people a force worthy of their confidence and trust.

As Guard members devote more time to military duties, there is often a conflict between employers or the family and the Guard member. We must be sensitive to time demands. Commanders and leaders must regularly review additional training requirements to be certain the extra training is necessary, cannot be conducted or integrated into scheduled training and is superbly presented to ensure the soldier departs the training satisfied that time has been profitably spent.

Modern equipment continues to be a readiness inhibitor to both the Army and Air National Guard. The directors of the respective services will describe these shortages in their statements. Although the Guard is better equipped today than anytime in its history, the Guard'inventory is predominantly of older equipment. As this reduces performance of our units, it also highlights the need for continued support for spare parts and other maintenance systems to assure the continued operability of our assets. Not only parts and supplies to our units, but the availability of these resources in the services supply systems to sustain operations in overseas locations is essential. We ask you to assist in this vital area of readiness which is often overlooked in favor of more exciting matters, but upon which the combat effectiveness of our forces is hinged.

The reliance upon the Guard is clearly expanded. The members of Congress have strongly supported this and have reflected their confidence in the citizen soldier concept upon which this nation's defense has been built. I believe we have repaid your confidence through the demonstration of our abilities to achieve results when properly resourced and led by trained and experienced officers and NCOs.

As the tempo of training and operations continues, the facilities built to meet the needs of the past are failing to satisfy the demands of today. Both the Army and Air Guard require complexes which permit practice in fire and maneuver. Army Guard units need ranges and outdoor training areas close to their homes. Air guardsmen need shops and hangars to service new generations of aircraft. We all need modern facilities to manage our far flung force and to offer our soldiers and airmen clean and orderly areas to work. These facilities will lead to increased productivity and enable us to capture today's technology to support our activities at lower cost with fewer people.

A bonus effect of this improved and modern National Guard is the benefits our citizens receive when their homes and families are threatened by local emergencies and disasters. Never a day goes by that you will not find National Guardsmen on duty somewhere in America serving their fellow citizens in time of need. Forest fires to floods, earthquakes, water hauls, hurricanes and snow emergencies are all events that bring Guardsmen to the service of their communities.

We are proud of our record and accomplishments and look forward to the future with confidence. For we have proven that our nation's reliance upon the Guard is being well served.

STATEMENT OF MAJOR GENERAL JOHN B. CONAWAY

Chairman STENNIS. All right, the next gentleman to testify is Maj. Gen. John B. Conaway, Director, Air National Guard.

All right, General Conaway, are you ready to go?

Major General CONAWAY. Yes, Mr. Chairman and Members of the committee. General Temple basically stated some of our Air National Guard needs. I will only state my extreme thanks to this committee for helping the Air Guard achieve the highest state of readiness that we have ever achieved in our history. Our strength level is over 114,000, and is scheduled to go to 116,700 next year.

I know manpower growth is of great concern, but ours is all force structure related due to additional aircraft, such as the C5s that we have in New York, C141s in Mississippi, and some additional KC135s that have gone to Alaska as well as to Wisconsin. So we need your help there.

MODERNIZATION PROGRAM

We are on a great modernization program. The Air Force is helping us with F15s and F16s, and we do have some critical support equipment shortages in those arenas, because of these accelerated faster conversions.We ask for your help there as well.

We need the last of our mission support aircraft replaced, as General Temple mentioned. And our C130 replacement we appreciate. The miscellaneous equipment money that this committee has given the Air Guard has been of immense help to us in both support and communications equipment as well as the ACMI, Air Combat Maneuvering Instrumentation that we are putting into several areas to enhance our aircrew training.

Mr. Chairman, I thank you and the committee for your strong support of the Air National Guard.

[The prepared statement of Major General Conaway follows:]

PREPARED STATEMENT OF MAJ. GEN. JOHN B. CONAWAY

AIR NATIONAL GUARD

MR. CHAIRMAN AND MEMBERS OF THE COMMITTEE, it is my pleasure to once again report to you on the current status of the Air National Guard (ANG).

The Air National Guard has reached its highest level of readiness in history and has also attained a new high in manning with over 113,000 men and women. The ANG is unique among the world's reserve military forces, combining both State and Federal functions. It provides the nation with an effective, economical military force for national defense and concurrently gives the States a trained, equipped and disciplined force to protect life and property while preserving the peace and public safety during natural disasters, civil disorders and other emergencies at the State level.

The State mission of the Air National Guard is to provide organized, trained and equipped units and personnel to respond to requests from State authorities during periods of emergency. During 1986, personnel of the Air National Guard were called up 63 times to provide assistance to civil authorities in various emergency and support operations. These missions involved 1,206 personnel and used a total of 3,813 workdays. Forty-six of these missions were in support of the National Search and Rescue Service using 519 Special Training workdays provided by the Aerospace Rescue and Recovery Service (ARRS) and resulted in 59 lives being saved. The remaining 17 missions were in direct support of civil authorities and involved 800 personnel using a total of 3,294 State Active Duty workdays. These missions consisted of disaster relief; evacuation and security operations following tornadoes, floods, hurricanes, forest fires and snowstorms; medical evacuation; emergency shelter; and emergency communications and power support. In addition to these missions, ANG tactical control radar and flying units participated in drug/law enforcement operations incidental to scheduled training.

The Air National Guard's Federal mission, as part of the total Air Force, is to provide units of properly equipped and trained personnel for prompt mobilization whenever called upon in a time of crisis. While this is certainly our primary Federal mission, the 1980's have seen tremendous growth in the direct mission support we provide to the Air Force on a year round basis. Gone are the days of training only one weekend a month and two weeks in the summer. We are now involved daily throughout the world performing real missions such as aerial refueling, air defense, tactical airlift and support of drug interdiction efforts. As an equal partner in the Total Force policy, we are actively involved in the defense mission. We have shown that we can perform our assigned missions and seek involvement in additional missions where we can realistically provide a direct contribution to the defense of our country.

The Air Guard is manned and ready to carry out its dual mission. Unit readiness remains high despite increased taskings and conversions to new and more complex weapon systems. The ANG has the fifth largest Air Force in the world. We have nearly 1,800 aircraft and perform a variety of demanding missions ranging from air defense and tactical fighters to strategic air refueling and strategic and theater airlift. ANG strength exceeded 112,500 at the end of FY 1986 and is projected to approximate 117,700 at the end of FY 1989.

FLYING UNITS

Our aircraft are organized into units to perform the Air Force missions indicated below:

Mission	Type Aircraft
Tactical Fighter	A-7, A-10, F-4, F-15, F-16
Theater Airlift	C-130A/B/E/H
Aerial Refueling	KC-135E
Air Defense	F-4, F-15, F-16
Tactical Reconnaissance	RF-4C
Tactical Air Support	OA-37
Aircrew Training	A-7, F-4, RF-4, F-16, C-130
Rescue and Recovery	HC-130/HH-3
Strategic Airlift	C-141, C-5
Special Operations (Tactical Electronic Combat)	EC-130E

While the flying unit structure remains stable at 24 wings and 67 groups, there is a significant increase in quality and effectiveness as we continue our modernization program and convert to new and more capable aircraft. The following ANG aircraft conversions have been publicly announced beginning in the fiscal year indicated:

Unit	From	To	FY
Little Rock, AR	8 KC-135E	8 C-130E	87
Jacksonville, FL	18 F-106	18 F-16	87
Great Falls, MT	18 F-106	18 F-16	87
Hickam AFB, HI	24 F-4C	24 F-15	87
McConnell AFB, KS	50 F-4D	42 F-4D/18 F-16	87
Eielson AFB, AK	-	4 KC-135E	87
Atlantic City, NJ	15 F-106	18 F-16	88
Dannelly Fld, AL	18 F-4D	18 F-16	88
Ft Smith, AR	18 F-4C	18 F-16	88
Otis ANGB, MA	15 F-106	18 F-15	88
Kingsley Fld, OR	18 F-4C	18 F-16	89
Portland, OR	18 F-4C	18 F-16	89

In addition to conversions, we continue modernization of some units through receipt of later models of currently owned aircraft. These enhancements are called series changes. The following series changes have been announced:

Unit	From	To	FY
Niagara Falls, NY	18 F-4C	18 F-4D	87
Ellington AGB, TX	18 F-4C	18 F-4D	87
March AFB, CA	24 F-4C	24 F-4E	87
Dallas, TX	8 C-130B	8 C-130H	87
St Joseph, MO	8 C-130A	8 C-130H	87
Terre Haute, IN	18 F-4C	18 F-4E	88

Still another category of change within our flying units increases or decreases the aircraft inventory of the unit. The currently announced changes in this category include:

Unit	From	To	FY
Charlotte, NC	8 C-130B	12 C-130B	87
Martinsburg, WV	8 C-130B	12 C-130B	87
Stewart, NY	3 C-5A	5 C-5A	87
Stewart, NY	5 C-5A	8 C-5A	88
Chicago, IL	8 KC-135	10 KC-135	88
Forbes Fld, KS	8 KC-135	10 KC-135	88
Bangor, ME	8 KC-135	10 KC-135	88
Pease AFB, NH	8 KC-135	10 KC-135	88
Milwaukee, WI	8 KC-135	10 KC-135	88
Birmingham, AL	22 RF-4C	18 RF-4C	88
Louisville, KY	22 RF-4C	18 RF-4C	88
Lincoln, NE	22 RF-4C	18 RF-4C	88
Moffett Fld, CA	5 HH-3E/1 CH-3E	5 HH-3E	88
Stewart, NY	8 C-5A	11 C-5A	89

While not falling into any of the above categories, the 158th Tactical Fighter Group, Burlington, VT will convert to an Air Defense Alert mission in FY 1988.

Thanks to the support of Congress and the Air Force, we will continue our program of modernizing our state operational support aircraft in FY 1988. Six additional states are scheduled to replace their old C-131 aircraft with new production aircraft similar in size to the C-12 aircraft previously funded by the Congress. The new aircraft will be competitively procured as directed by Congress. Units scheduled for C-131 replacement in FY 1988 are Boise ID; Ellington TX; Fresno CA; Peoria IL; Meridian MS and Willow Grove PA.

As a result of our modernization efforts, Air National Guard units continue to make substantial contributions to the total Air Force combat capability and will fulfill a large portion of the force commitment during any future crisis. At the end of FY 1988, the Air National Guard will possess 86 percent of the total Air Defense Interceptor forces, 50 percent of the Tactical Reconnaissance forces, 35 percent of the Theater Airlift forces, 25 percent of the Tactical Fighter forces, 17 percent of the Aerial refueling forces, 16 percent of the Rescue and Recovery forces, 9 percent of the Special Operations forces, 28 percent of Tactical Airborne Command and Control forces, and 5 percent of the Strategic Airlift Forces.

MISSION SUPPORT UNITS

Equally important to the success of the ANG are our Mission Support Units. We have 244 independent units heavily concentrated in the areas of communications, weather, tactical control, aircraft control and warning, and civil engineering. An additional 298 support units are collocated with our flying units and are primarily medical, civil engineering, security, communications and aerial ports.

Eighty-six base communications flights provide fixed communications and data processing support to our flying units. These units operate and maintain base telephone systems, base information processing centers, ground-to-air radios, land mobile radios, high frequency radios and base cable plants. Forty-three of these flights also have separate, deployable elements which provide record and voice communications at collocated operating bases in Europe.

Our 54 Combat Communications type units are equipped and staffed to support the Defense Communications System, Tactical Air Forces, Readiness Command, Central Command and the Joint Task Forces. They provide specific communications service to forward deployed commanders, and provide added and restoral service to the Defense Communications System. These units also provide terminal air traffic control facilities.

Our 40 Weather units (39 flights and one squadron), provide weather support to Army Guard and Reserve units and also train with the units they are tasked to support.

We have 29 Tactical Control units operating mobile radar control and reporting centers in addition to providing forward air control posts. These 29 units consist of 3 Tactical Control Groups, 9 Tactical Control Squadrons and 17 Tactical Control Flights. All units have a wartime tasking and quick response deployment schedule. Ten of these units deployed to Europe in FY 1986 to support exercises in Denmark, Gibraltar, Italy and Germany.

We also have 4 Aircraft Control and Warning Squadrons which provide air surveillance radar coverage and aircraft control capability for Hawaii and Puerto Rico. The Regional Operational Control Center in Hawaii is operated and maintained completely by Air Guard personnel.

Our 19 Engineering Installation (EI) squadrons are equipped and trained to engineer, install, relocate, remove, restore and accomplish on-site depot level maintenance on radars, antennas, cable plants, radios and teletype and communications centers. Our EI units represent the majority of the total Air Force capability for this type work and each year accomplish a significant portion of the total Air Force EI workload.

Our 95 Civil Engineering units are trained and equipped to undertake wartime force beddown, rapid runway repair and base recovery construction. Peacetime alteration and repair projects sharpen their wartime skills and provide urgently needed projects for both active Air Force and Air National Guard bases.

Our remaining mission support units run the gamut from Permanent Field Training Sites where our flying units deploy for inspections and realistic training to Air Base Defense units charged with protection of airfields.

Like their flying unit counterparts, our mission support units contribute heavily to the total Air Force combat capability. In FY 1988, the Air Guard will possess 67 percent of the Air Force combat communications forces, 56 percent of engineering and installations forces, 24 percent of the civil engineering forces, 50 percent of tactical weapons control, 17 percent of the weather reporting and forecasting forces, 69 percent of the aircraft control and warning forces, 9 percent of Medical Support units and 15 percent of Aerial Port units.

TRAINING, EXERCISES AND DEPLOYMENTS

Air National Guard units make significant contributions to the Air Force as a by-product of realistic training. We are full partners with other active and reserve components in overseas deployments, Joint Chiefs of Staff exercises, Air Force training exercises, and Air National Guard sponsored Composite Force Training exercises.

Our overseas deployments temporarily move entire flying units along with their support personnel, civil engineering, tactical control, engineering installation, and combat communications units to theater locations throughout the world. Such deployments provide realistic and valuable theater specific training.

The Air National Guard has exercised several deployment concepts in order to validate wartime capabilities and maximize our training dollars. For example, five ANG fighter units used KC-10s in a dual role (air refueling and airlift) to support Checkered Flag deployments to Iceland, Spain, Italy, United Kingdom and Germany. Use of the dual role KC-10s helped prove the KC-10s capability in major squadron deployments and significantly reduced the overall cost of these important Air National Guard deployments.

During 1986, three ANG tanker units deployed four aircraft each and approximately 200 personnel to Moron AB, Spain for 15 days of annual training in support of the European Tanker Task Force. ANG tanker units also deployed to Wake Island (5 aircraft); Rome, Italy (3 aircraft); Kadena AB, Japan (3 aircraft), and United Kingdom (2 aircraft). Our aircrews gained valuable experience in European and Pacific theater air refueling tactics, our support personnel became seasoned in unit support operations away from home station, and all personnel benefited from a mobility preparedness exercise. During 1986, the ANG supported 36 separate fighter deployments by providing nearly 100 KC-135E tanker aircraft.

In addition to the refueling support provided for in-theater training requirements during these exercises, the ANG tanker units provided a KC-135 aircraft on 24 hour alert in Keflavik, Iceland to support the real world mission of E-3 and F-15 assets stationed there.

For one year, from 1 April 1986 to 31 March 1987, the Air National Guard maintained two F-4 aircraft on 24 hour alert at Ramstein AB Germany. This deployment of 8 F-4 aircraft was supported by 750 Guardsmen, from over 20 states, with the special effort of three core units from Fargo ND, Duluth MN, and Fresno CA. These Guard volunteers received excellent training while simultaneously performing a real world active duty mission.

Our ski-equipped C-130 unit at Schenectady, NY provides the only Air Force capability for transporting oversized cargo to the remote radar sites on the Greenland icecap. This Arctic resupply mission, Volant Dew, entails airlift of all fuel, construction items and oversized supplies throughout the year. This unit also supports National Science Foundation projects on the icecap and provides search and rescue support when required.

In the Southern Command region, the ANG maintains four A-7 aircraft on station at all times in defense of the Panama Canal. These aircraft are supported by our reengined KC-135s, which in addition to performing aerial refueling, move personnel and equipment and release previously used C-130s for other taskings. We also maintain two Aircraft Control and Warning Radar units in defense of Puerto Rico, and support airlift requirements throughout Central and South America with six C-130 aircraft, a mission we share with the Air Force Reserve.

During FY 1986, Air National Guard Tactical Airlift units provided support for 352 missions, utilizing 1,220 airframe days and flying 6,100 hours, in Joint Airborne/Air Transportability Training (JA/ATT), an interservice program for the wartime application of airlift. In this program, the various services jointly develop common procedures for combat operations in order to attain and maintain wartime readiness.

The Air Guard also supports the Army in exercises throughout the world. Joint training programs, such as at the National Training Center, Fort Irwin, California, provide joint training experience for both the Army and Air National Guard.

To sharpen ANG fighting skills and familiarize our ANG personnel with joint operations, Composite Force Training exercises are conducted throughout the year. These exercises are sponsored and planned by Air Guard flying units, Permanent Field Training Sites, and active Air Force units. These exercises encompass all mission areas of the Air Guard and are developed for the specific purpose of providing realistic training for all participants.

As a further measure of the ANG's global readiness and realistic training received, 14 Tactical Fighter and Reconnaissance units participated in 11 overseas deployments to Korea, Germany, Norway, England and Turkey during FY 1986. Two of these deployments were joint deployments where two or more units deployed together. This approach has reduced airlift costs, since units share equipment and resources. Ten Fighter and Reconnaissance units are scheduled to participate in 9 overseas deployments in FY 1987.

I have talked about the significant contributions our flying units make as a by-product of training. Our mission support units have also made impressive training advances. In the past year, our combat communications units have deployed approximately 1,500 personnel to Europe, Central America, Southwest Asia and Korea in support of major exercises. Additionally, thousands of ANG communications personnel have participated in dozens of exercises within the continental United States. The combat readiness of these units will be tested again in FY 1987 by their participation in 42 exercises and deployments worldwide.

Our Engineering Installation (EI) units also deployed to Europe and Korea during FY 1986 and performed successfully exercising wartime conditions.

Our civil engineering and services units also participate in JCS European, Pacific, Alaskan and Southern Command exercises. A steadily growing trend of National Guard involvement in joint exercises has enhanced training and the Total Force concept.

COMPETITION

Competition among Air Force, Air Force Reserve and Air National Guard units indicates how well prepared our units are compared to each other.

Volant Rodeo is a world-wide tactical airdrop competition involving active, Reserve, Guard and allied aircrews, maintenance and associated support personnel. In 1986, Volant Rodeo was held at Pope AFB with 34 units participating, including 5 ANG units. Recipient of the Best Overall Unit Award was the 145th Tactical Airlift Group, Charlotte, NC. This event, to be called Airlift Rodeo in future years, is the top competitive event for airlift units and receives world wide publicity.

All ANG Reconnaissance units participated in Reconnaissance Air Meet 86 (RAM 86) at Bergstrom AFB TX in November 1986. The RAM 86 competition was a tactical reconnaissance competition involving active Air Force, Navy and Marine Corps units; Navy and Marine Corp Reserve units; a Royal Austrailian Air Force unit; and Air National Guard units. The top overall team in this world-wide competition was the ANG's 152d Tactical Reconnaissance Group, Reno, Nevada. The 186th Tactical Reconnaissance Group, Meridian, Mississippi, was named the top maintenance team and the 124th Tactical Reconnaissance Group, Boise, Idaho, was recognized as the top aircrew. Overall, ANG teams held 5 of the top 7 positions in this competition.

The first competition for combat communications units was held in FY 1986. "Combat Challenge", a series of competitive events, measures team skills in mobility, physical fitness, and set-up and operation of Communications-Electronics (C-E) and Traffic Control and Landing Systems (TRACALS) equipment. Three ANG groups and four active Air Force groups fielded teams for the competition with the team from the 162nd Combat Communications Group, California ANG placing first in Combat Challenge '86.

ANG Electronics Installation units compete annually in the "EI Shootout". The "Shootout" is a series of competitive taskings undertaken by Air Guard and Active Air Force units. The ANG EI teams regularly place competitively in these events.

READINESS

I am proud to report that again in 1986, Air National Guard units have successfully demonstrated their capability to perform their wartime mission during Operational Readiness Inspections (ORIs) conducted by Air Force gaining commands. Even through the turbulence related to conversions and modernization efforts, the readiness of our units remains at a very high level.

There are a number of contributing factors to our readiness. Recently adjusted ANG precedence ratings in the DoD Logistics System have given us parity with like Air Force units. As a result, we have improved our equippage and support posture in consonance with DoD policies. Assignment of more modern equipment has lessened logistical problems. And, our people are doing a superb job. Realistic training and increased activity provides a solid base in preparation for ORIs. These inspections are conducted using realistic wartime scenarios that inject stress and require commanders and staff to make decisions that closely approximate what would be expected in the wartime environment. The majority of ANG units now deploy from their home stations for inspections. These deployments accentuate mobility training and experience in unit operations in an unfamiliar environment and have materially enhanced unit readiness and capability.

MANPOWER

The Air National Guard achieved an end strength of 112,592 in FY 1986. This is the highest level ever achieved by the ANG and marked the eighth consecutive year that programmed end strength levels have been achieved. In FY 1987, we are operating under a Congressionally imposed end strength ceiling which limits our growth.

In the past, all reserve components operated under an average strength floor enabling components to take advantage of favorable recruiting climates and exceed end strengths, provided the necessary fiscal resources could be identified within available appropriations. I urge the Congress to allow us to return to the strength floor concept enabling us to profit from a positive recruiting atmosphere. Our programmed FY 1987 end strength of 113,429 includes 7,631 Active Guard/Reserve (AGR) personnel, our programmed FY 1988 end strength of 116,700 includes 7,906 AGRs, and we are programming a FY 1989 end strength of 117,700 with 7,972 AGR personnel. We plan on attaining these strengths in FY 1987-89 with funded average strengths of 111,869, 114,100 and 116,200 respectively.

The Air National Guard full-time force is vital to the success of the ANG mission and consists of a mix of Title 32 military technicians, Active Guard/Reserve (AGR) personnel and Title 5 civilians. The military technicians and AGR personnel provide continuity at our units throughout the year and play an important role in the training of our traditional Guard personnel. The vast majority of our military technicians are in maintenance and support functions. Security, field training sites, ranges, detached alerts, aircraft operations, recruiting, retention and similar type functions that are military in nature are performed by AGR personnel. Title 5 civilians are employed here at the Headquarters and at those bases where the ANG has been designated as the host.

In FY 1986, the Air Guard did not achieve its combined military technician and full-time military (AGR) end strengths due to fiscal constraints imposed by Gramm-Rudman-Hollings and because it appeared that a zero growth posture would be enacted for FY 1987. Our FY 1987 full-time growth was actually reduced by 586 without a corresponding reduction of roles and missions. The FY 1988 funding request reflects only 31 technician and 275 AGR increases. The FY 1989 request includes an additional 45 technicians and 66 AGR personnel above FY 1988 levels. Full-time resources are programmed to support specific missions, equipment and force structure changes. Full-time strength reductions will limit our ability to perform assigned missions and could eventually effect our unit readiness objectives. Limited AGR growth will also create serious personnel problems in the ANG, foremost of which is grade stagnation.

Although the ANG has consistently exceeded programmed strength levels, many critical skills remain below acceptable levels. At the end of FY 1986, a significant percent of our vacancies were in hard-to-fill skill areas such as avionics systems, munitions systems, aircraft armament and Communications systems maintenance. Through the judicious use of the New G.I. Bill and other incentives, we hope to eliminate these shortfalls. We expect to meet our strength goals, but anticipate a greater challenge as the recruitable population decreases.

The ANG recruiting program uses a precision recruiting approach which keynotes recruiting for existing or projected skill vacancies. Overall responsibility for recruiting rests with the respective State or territory. The addition of a full-time retention force at base level has paid off as the ANG has the highest retention rate of any reserve component. We continue to focus our attention on recruiting rated officers, medical officers, engineering officers, minorities and women. The continuation of recruiting and retention as co-equal programs has aided the ANG in meeting end strength objectives as well as furthering our progress in reducing critical skill vacancies.

The Air Guard is highly dependent on prior service personnel as a source of recruits. By recruiting a high percentage of prior service personnel, we are able to utilize the skills of a trained and experienced person and avoid the high cost of basic military training and initial skills technical training. Since 1980, our enlisted accessions have approximated a 60 percent prior service and 40 percent non-prior service mix.

OPERATION AND MAINTENANCE BUDGET REQUIREMENTS

Operation and Maintenance funds are the key ingredient of force readiness. These funds are used to buy fuel and flying hour supplies, perform depot maintenance on our weapons systems and components, maintain our facilities, and pay our civilian employees.

The following table shows Operation and Maintenance funding data for FY 1986-89 for the Air National Guard.

($ in Millions)

Budget Activity	FY 1986	FY 1987	FY 1988	FY 1989
Mission Forces	$1,285,755	$1,307,284	$1,476,253	$1,534,374
Depot Maintenance	322,386	366,541	389,668	394,285
Other Support	115,195	121,703	107,071	102,229
TOTAL	$1,723,336	$1,795,528	$1,972,992	$2,030,888

The Air National Guard Operation and Maintenance request for FY 1988 reflects an increase of $177.5 million over FY 1987. However, all of this is price growth which buys nothing as far as new programs are concerned. In fact, the FY 1988 request reflects negative program growth of 0.8 percent. Similarly, while FY 1989 reflects an increase of $57.9 million over FY 1988, this too is price growth. There is negative program growth of 0.3 percent in FY 1989.

The Operation and Maintenance Appropriation is administered in three separate programs called budget activities. The activities are Mission Forces, Depot Maintenance, and Other Support.

Mission Forces. This budget activity funds our flying and mission support unit operations. Major changes in this activity are:

- Increases to support four additional aircraft conversions and to support the transfer of 47 additional PAA from Other Support budget activity.

- Decreases due to one time purchase of supplies in FY 1987, one time purchase of data automation equipment to support the ANG portion of the Core Automated Maintenance System (CAMS), and transfer of the contract portion of the Hawaii Regional Operations Control Center (HIROCC) back to the Air Force.

Depot Maintenance. This budget activity funds all centralized maintenance and modification of our weapons systems and other equipment performed at Air Logistics Centers. Major changes in this activity are:

- Increases in engine overhauls and F-15/F-16 aircraft maintenance and modifications.

- Decreases in F-4D aircraft program depot maintenance and F-4D, A-7, and EC-130 aircraft maintenance modifications.

Other Support. This budget activity funds the operation of the ANG support aircraft flying program, the National Guard Bureau's Air Directorate, real property maintenance, and base operating support for the six bases for which the ANG is host or single manager (Buckley, Ellington, Otis, Rickenbacker, Selfridge and McEntire). Major changes in this activity are decreases due to transfer of C-12, C-22, C-130A, C-131, and T-43 aircraft to Mission Forces budget activity; ANG Headquarters civilian end strength reduction; and deferral of facility maintenance project at Quonset, RI until FY 1989.

ANG MILITARY PERSONNEL BUDGET REQUIREMENTS

This appropriation provides military personnel funding for the pay, allowances, clothing, subsistence, retirement and other expenses of Air National Guard members. The budget request is based on an average of 114,100 personnel in FY 1988 and 116,200 personnel in FY 1989 who will be assigned to ANG flying and mission support units. The following table shows National Guard Personnel, Air Force, funding data for FY 1986-89.

($ in millions)

Budget Activity	FY 1986	FY 1987	FY 1988	FY 1989
Unit and Individual Training	$558,435	$490,823	$509,874	$519,998
Other Training and Support	415,898	457,755	470,126	460,002
TOTAL	$974,333	$948,578	$980,000	$980,000

The Military Personnel budget request for FY 1988 increases by $31.4 million over FY 1987 and remains at that amount for FY 1989. This provides real growth of 2.8 percent in FY 1988 and 0.2 percent in FY 1989.

Unit and Individual Training. This budget activity finances all those personnel who annually perform 15 days of active duty for training, 48 unit training assemblies and additional flying training periods (Pay Group A). It also finances basic training for non-prior service personnel as well as follow-on skills training either at home station or formal Air Force technical schools (Pay Group F). Lastly, it finances the pay of high school graduates and seniors who are awaiting entry into basic training (Pay Group P). Major changes in this activity are increases in medical manning in response to second echelon medical tasking, increases in response to aircraft growth and associated force structure changes, additional funding to support increased participation rates at Unit Training Assemblies, the full year impact of prior year strength increases and Retired Pay Accrual associated with program changes.

Other Training and Support. This budget activity finances formal school training for our personnel; special training tours of active duty; pay, allowances and other expenses for ANG personnel on full-time active duty; and other costs such as enlistment and reenlistment bonuses, educational assistance, selective affiliation bonuses, student loan repayments, disability payments for personnel injured in the line of duty, and retirement pay accrual costs. Major changes in this activity are increases for additional medical schooling, increased direct unit support manning, and Retired Pay Accrual associated with program changes.

CONCLUSION

The Air National Guard has proven to be an integral part of the Total Force. We exist to support U.S. foreign policy and national security objectives, while providing a State militia uniquely qualified for local disaster and public safety needs. Our responsibilities are truly global, national and local, and each offers its own set of challenges for the future.

The Air Guard is ready to meet these challenges. The capability of our citizen airmen to respond to the most demanding wartime missions is a matter of record. We appreciate the continuing strong support of the Congress. Your support has permitted the Air National Guard to continue modernization and to make significant progress toward our goal of strength through readiness.

Mr. Chairman, this concludes my prepared statement and I will be happy to respond to any questions you may have.

FUNDING LIMITATIONS

Chairman STENNIS. We thank you very much for your testimony here, General.

Let me say this as a general proposition. I have not emphasized it, before this morning. You have a fine organization, you are making great strides forward and have made tremendous improvements through your fine leadership. But there is a limit on the amount of money we have. And that is a very serious matter.

I am proud of the growth that you have had, but we are going to have to scramble for the added funds, for whatever we add above what you have now, whatever we plan to have in your program the next few years. That is going to be the hard part. It is nice to have a whole lot of planes and other modern equipment, but, at the same time, you run into the limitations we have on the amount of money we have available. However, we are going to do the very best we can.

We are going to proceed, if it is agreeable to the committee.

I believe Brigadier General Donald Burdick, Director, Army National Guard is next. General Burdick?

STATEMENT OF BRIGADIER GENERAL DONALD BURDICK

MANPOWER

Brigadier General BURDICK. Mr. Chairman, other distinguished Members of the committee, I am pleased to appear before you to discuss the needs of our Army National Guard.

General Temple covered this quite adequately and highlighted the points, the key issues. I would just like to mention a few points too this morning in addition to what he covered.

The first issue is manpower. The budget which you will consider pays for our men and women, members of the Army National Guard, our citizen soldiers, a component which now constitutes some 43 percent of the combat forces and 20 percent of the support forces in the total army.

I think these figures emphasize the fact that the Guard is no longer a reserve force requiring months of training to be combat ready, but an army on call, a full partner in this Nation's defense.

Now one of the primary keys to readiness is the part played by our full-time active Guard reserve personnel. These individuals constitute approximately 50 percent of our full-time manpower, and comprise the very important unit support force down at unit level. These are the people that provide administration, training, logistic support, maintenance support on a day to day basis.

BUDGET AND END-STRENGTHS

This year's budget submission requests a very modest increase of some 1,329 in the AGR force in fiscal year 1988 and a like amount in fiscal year 1989. Also we are requesting some 500 slots in our military technician, full-time force.

You know, in 1985 the Congress established a goal of full-time support of some 14 percent of our Guard end-strength by the end of 1989. This was reaffirmed in 1986. These modest increases will only bring us up to about 12 percent. We will still be some 9,000 short of the 14-percent goal in fiscal year 1988.

Another area, and again this was mentioned by General Temple, I just want to highlight it, is specialized training, the overseas deployment training of our Guard units. This is so very important to ensuring that our personnel are able to take their rightful place in the capstone program alongside our full-time active component force.

FUNDING FOR KPUP

Key Personnel Upgrade—KPUP, we need additional funding in KPUP. This year we will have some 26,000 soldiers, both individuals and small groups, crews, training with the active component. And again this is very important to readiness of the Guard. And we are doing an excellent job. Last year we lost some $33 million in that program so we need additional emphasis there.

RETENTION PROGRAM

Another issue is the incentives, the retention program. We have got the highest retention rate in the Army Guard ever. Our turnover rate is just 18.6 percent. We believe the retention program, the great strides we have made in this program are due to these incentives.

We must have the new G.I. bill, and all these other initiatives to keep our force progressing in a positive direction.

SELECTED RESERVE INCENTIVE PROGRAM

Another incentive program is the Selected Reserve Incentive Program. This provides certain bonuses, a student loan program, a health professional loan repayment program, and I think an important feature of this, it has increased our 6-year enlistments, from just 2.1 percent before the program began a few years ago to over 40 percent in recent years. So we are keeping personnel in the Guard.

REPAIR PARTS BACKLOG

The repair parts backlog is a problem that is more pronounced as we field modernized equipment and still have some of the older equipment on hand that we have to bring up to standard before we turn in. And we need additional funding in the maintenance repair backlog program.

I believe, sir, that this sort of highlights some of our needs this year. I do appreciate, all of us appreciate the support that this committee has rendered to the Army National Guard, and we appreciate what you do for us, sir. Thank you very much.

[The prepared statement of Brigadier General Donald Burdick follows:]

INTRODUCTION

The National Guard celebrated its 350th anniversary in 1986. It was a time for celebration; a time for looking back and remembering. The National Guard traditions of neighbor helping neighbor and citizen/soldiers fighting for the defense of freedom existed even before the U.S. Constitution was written and ratified. With the adoption of the Constitution, the founding fathers in their wisdom chose to continue their reliance on the militia as the backbone for this country's defense. After all, the militia had served them well. The army on-call, the citizen soldier, had fought and won the war that provided the independence of this country and the freedoms that are so precious to us all.

From the beginning the National Guard has engaged in every major conflict in defense of those same freedoms for which the colonial militia so valiantly fought. The Guard has also carried on the tradition of neighbor helping neighbor. Time and again over the years the Guard has been callled upon to assist during floods, tornados, other natural disasters, and civil unrest.

The 350th anniversary year also was a time in which the National Guard looked forward. Today, more than ever, this country relies upon the Guard to provide the strength required to maintain a military posture which leaves no doubt in the minds of our potential adversaries as to what our position will be if freedom is threatened (See Chart 1). In the tradition of the founding fathers who relied upon a ready militia, our country is relying more and more on the Guard. Missions assigned previously to active component elements of the Army are now being regularly assigned to the National Guard.

Chart 1

RECAP COMBAT CAPABILITY OF THE TOTAL ARMY
THE ARNG HAS APPROXIMATELY:
O 36% OF COMBAT DIVISIONS
O 67% OF SEPARATE/ROUNDOUT BRIGADES
O 25% OF SPECIAL FORCES GROUPS
O 50% OF INFANTRY BATTALIONS*
O 100% OF INFANTRY BATTALIONS (TLAT) (4)
O 100% OF INFANTRY BATTALIONS (MOUNTAIN) (1)
O 100% OF INFANTRY GROUPS (SCOUT)
O 44% OF ARMORED BATTALIONS
O 57% OF ARMORED CAVALRY REGIMENTS
O 50% OF FIELD ARTILLERY BATTALIONS*
O 36% OF SIGNAL BATTALIONS
O 41% OF ENGINEER BATTALIONS
O 33% OF AVIATION UNITS
*INCLUDES ORGANIC AND SEPARATE

Today, National Guard soldiers in 4,464 units throughout 2,680 communities of this nation, understand the importance of this new reliance. In the tradition of generations of their forefathers, they are taking up the challange. Like their forefathers who fought at Bunker Hill, New Orleans, the Meuse Argonne, Normandy, Old Baldy, and Pleiku, they are dedicated to being professional in every sense.

The intensified training Guard soldiers are receiving and the modern equipment being provided, have given the Guard a foundation for winning which is seldom found even among many of the regular forces of the world's armies. Through the continued cooperation of Congress, the Department of Defense, the Department of the Army, and the states and territories, the Guard will continue to be a full, reliable partner in this nation's defense team. Like the proud and dedicated militiamen before, the Army National Guard soldier of today is ready if needed.

STATE MISSION

The National Guard's 350th Anniversary year, once again found ever increasing requests for Guard support throughout the United States. These requests resulted from all types of emergencies. Support to combating the trafficking of illegal drugs in the United States has become an emergency of large proportion. FY 86 saw a quantum increase in support to drug control operations by the National Guard. To this end, 19 states conducted 230 missions in support of drug enforcement agencies. The execution of these missons resulted in the confiscation or destruction of 1,149,644 plants and 80 tons of marijuana, having a street value of approximately $1,064,733,311; a significant contribution. The Guard continued to assist civil authorities in preserving life, protecting property, and helping maintain law and order.

During FY 86, 44 states and two territories relied on the expertise and responsiveness of the National Guard to provide support during 531 separate emergencies. A variety of natural disasters required the assistance of these citizen soldiers. This support ranged from finding and rescuing persons stranded by snow storms, to recovery operations following floods, tornados, and hurricanes. In addition, forest fires in the western states during the summer months resulted in a significant number of callups. Humanitarian missions conducted included stream maintenance; search and rescue; assistance in cleaning up chemical spills; and providing emergency power, potable water, housing for the homeless, and medical evacuation. Requests for specialized equipment and personnel for a variety of other emergencies continue to increase, reflecting public acceptance and dependence on the National Guard as the first line of defense against disasters, both natural and man-made.

FEDERAL MISSION

ORGANIZING THE GUARD

Forty-three percent of the combat forces and twenty percent of the support forces within the Total Army are provided by the Army National Guard. Major units comprising the Total Army force structure include ten combat divisions, fourteen separate brigades, four armored cavalry regiments, an infantry scout group, two special forces groups, four TOW (Tube-launched, Optically-tracked, Wire command-link guided) light anti-tank battalions, four roundout brigades, and six roundout battalions. In the event of mobilization, eighteen of the twenty-eight Army divisions would be manned wholly or in part by the Army National Guard. Chart 2 provides a complete list of major Army National Guard organizations and roundout units.

Significant force structure actions in FY 86 continued to revolve around the organization of the Army Guard's two newest divisions: the 35th Infantry Division (Mechanized), headquartered at Fort Leavenworth, Kansas, and the 29th Infantry Division (Light), headquartered at Fort Belvoir, Virginia. The 35th Division, made up of units from Colorado, Kansas, Kentucky, Missouri, and Nebraska, converted maneuver brigades to organic divisional structure and the Division Artillery activated with existing field artillery battalions converting to divisional organization. The Combat Aviation Brigade also activated along with the divisional cavalry squadron. With the activation of an armored battalion and a target acquisition battery in FY 87, the 35th Division will be fully structured, except for its air defense artillery battalion. Organization of the 29th Division continued in FY 86 by forming a division nucleus from the consolidation of two separate infantry brigades: Maryland's 58th Infantry and Virginia's 116th Infantry. Other division elements were organized through the activation and conversion of existing units in Maryland and Virginia. Chart 3 provides a more complete picture of the numbers of unit changes taking place:

Chart 2

MAJOR ARMY NATIONAL GUARD ORGANIZATIONS AND ROUNDOUT UNITS END OF FY 86

DIVISIONS (10)

49TH ARMORED	TX-NM	26TH INFANTRY	MA-CT-SC
50TH ARMORED	NJ-VT-NM	28TH INFATNRY	PA-VA
35TH INFANTRY (M)	CO-KS-KY-MO-NE	38TH INFANTRY	IN-MI-OH
40TH INFANTRY (M)	CA-NV-NM	42ND INFANTRY	NY-FL
29TH INFANTRY (L)	MD-VA	47TH INFANTRY	MN-IL-IA-NM

SEPARATE BRIGADES (14)

30TH ARMORED	TN
31ST ARMORED	AL
30TH INFANTRY (M)	NC
32ND INFANTRY (M)	WI
81ST INFANTRY (M)	WA
218TH INFANTRY (M)	SC
29TH INFANTRY	HI
33D INFANTRY	IL
39TH INFANTRY	AR
41ST INFANTRY	OR
45TH INFANTRY	OK
53D INFANTRY	FL
73D INFANTRY	OH
92D INFANTRY	PR

ARMORED CAVALRY REGIMENTS (4)

107TH ACR	OH-WV
116TH ACR	ID-OR-MS
163D ACR	MT-TX
278TH ACR	TN

DIVISIONAL ROUNDOUT BRIGADES (4)

48TH INFANTRY (M) (24 ID _M_)	GA
256TH INFANTRY (M) (5 ID _M_)	LA
27TH INFANTRY (L) (10 ID _L_)	NY
155TH ARMORED (1 CAV)	MS

BATTALION ROUNDOUTS (7)

2-136 INFANTRY (M) (1 ID _M_)	MN
2-120 INFANTRY (M) (4 ID _M_)	NC
3-141 INFANTRY (M) (1 CAV)	TX
1-263 ARMOR (1 CAV)	SC
2-152 ARMOR (5 ID _M_	AL
1-252 ARMOR (2 ID	NC

SEPARATE BATTALIONS (2)

1-210 ARMOR	NY
3-172 INFANTRY (MOUNTAIN)	VT-ME-NH-NY
1-803 ARMOR	WA

Chart 3

UNIT ACTIVATIONS/INACTIVATIONS/CONVERSIONS/ALO CHANGES

	ACTUAL		PLANNED		
	FY 85	FY 86	FY 87	FY 88	FY 89
ACTIVATIONS	27	99	117	100	150
INACTIVATIONS	7	49	20	17	51
CONVERSIONS	207	72	173	141	212
ALO CHANGES	230	55	59	17	82

New Mexico's 5th Battalion, 200th Air Defense Artillery (Roland), completed the organization of its headquarters and headquarters battery and three firing batteries and became fully operational in FY 86.

Three Army Guard heavy divisions completed their conversion to the Division 86 design in FY 86 with formation of their Combat Aviation Brigades, modernizing both attack and lift capabilities. Division 86 changes provide divisions with a capability to fight all aspects of the Airland Battle. Oregon's 41st Infantry Brigade completed conversion from a roundout to a roundup mission in FY 86 as the 7th Division converted to a light infantry configuration. The 41st Brigade will maintain its current resource priority and training relationship with the 7th Division, but will become a corps rather than divisional asset.

Other FY 86 actions involved the roundout roles for two Army National Guard brigades. New York's 27th Infantry Brigade converted from a divisional brigade and assumed a roundout mission with 10th Mountain Division (Light Infantry) in April 1986. The organization of a replacement brigade for the 42nd Infantry Division occurred in Oct 86. One infantry battalion will activate in FY 88. Hawaii's 29th Infantry Brigade transitioned from a roundout to a roundup mission as the 25th Division converted to Light Infantry. The 29th Brigade, also, will maintain its current resource priority and training relationship with 25th Division, but will be a corps rather than a divisional asset.

Force structure actions in FY 87 will concentrate heavily on aviation force modernization. Aviation support for five Army Guard Infantry Divisions will be modernized with the activation of Divisional Combat Aviation Brigades. At corps level, five attack helicopter battalions and five combat aviation battalions will be formed largely from existing units. Other actions involve conversion of the only TOW Light Anti-tank Battalions (TLAT) in the Total Army to modernized structure, authorizing them new High Mobility Multi-purpose Wheeled Vehicles (HMMWV'S). Modernization of six ARNG armor and mechanized infantry separate brigades and conversion of two Armored Cavalry Regiments (ACR) will also occur in FY 87. These ACRs will reorganize into the Division 86 configuration and each will activate a combat support squadron. Additionally, they will consolidate their aviation assets into regimental combat aviation squadrons. One ADA battalion with Hawk missiles will activate during FY 87 and modernization of "Duster" units to Chaparral will continue with a second battalion being converted.

FY 88 force structure will concentrate with echelons above divisions. An AH-64 Attack Helicopter Battalion and five aviation headquarters will activate in corps structure. A Multiple Launch Rocket System Battalion will activate, the first in the ARNG. Utah's 142nd Linguist Battalion will expand and convert from a TDA to an MTOE organization. ARNG Engineer Topographic Units will implement the "L" series TOE design and two new hospitals will be added to the ARNG medical structure.

MANNING THE GUARD

In keeping with the highest traditions of being an all-volunteer force, the ARNG once again extablished new records for paid end strength. After beginning the year with 439,952 soldiers, the year closed with an additional 6,200 in the ranks. This was achieved through an aggressive recruiting and retention program which has consistently produced outstanding results for the Army Guard. The growth in ARNG Strength is depicted below in Chart 4. This growth serves to highlight a continuation of the policy of reliance on the Guard to defend this nation and freedom around the world. The Guard is no longer a "back-up" or even an augmentation, but now serves as a full partner in this nation's defense forces. This growth in the strength of ARNG forces must continue into FY 88 and FY 89 and beyond.

Chart 4 ARNG PAID STRENGTH

FY	OFF	ENL	TOT	TOTAL INCREASE	TOTAL AGR
78	34.3	306.7	341.0	-	-
79	35.8	309.7	345.5	4.5	1,098
80	37.3	329.3	366.6	21.1	6,244
81	38.4	350.6	389.0	22.4	10,052
82	40.4	367.2	407.6	18.6	11,374
83	41.7	375.5	417.2	9.6	13,757
84	41.8	392.4	434.3	17.1	16,656
85	42.3	397.6	440.0	5.7	21,059
86	44.0	402.6	446.2	6.2	23,780
87	44.5	408.1	452.7	6.5	25,060
88	45.4	413.4	458.8	6.1	26,389
89	46.3	418.6	464.9	6.1	27,718

Officer Management Programs

The end of FY 86 officer strength was 43,566 or 99% of objective and represented a 3% net growth over FY 85. This performance was the best since 1983 when 99.7% of the objective was achieved. This can be attributed to several factors including enhanced officer recruiting, improved retention efforts, excellent performance by the ARNG Lieutenants Management Team (ALMT), and record production from the State OCS program. These efforts were aided by enhanced overstrength policies which resulted in 5,240 total officer gains or 93% of programmed, up from 5,125 (80%) in FY 85. Total losses of 3,868 were

98% of the 3,944 programmed compared to 4,632 in FY 85. The resulting overall 9% officer loss rate was a notable improvement over the 11% FY 85 rate.

Total FY officer accessions were significantly below program with the shortfall of appointments from ROTC being a major contributor. Only 507 of 1,312 projected gains were realized. However, much improvement is anticipated during FY 87. During FY 86, the STates continued to enhance their support of the Two-Year Army ROTC Reserve Forces Duty (RFD) Scholarship Program continues to show improvement. This program allows recipients to perform their obligated service in the Reserve Components (RC).

During SY 86-7, 117 scholarships were awarded to members of the ARNG against a program allocation of 108. This translated into a 108% utilization rate compared to an 82% utilization rate in SY 85-6. Efforts continue to secure expansion of this program to offer three-year and four-year scholarships for the Guard. This initiative is needed to enhance ARNG recruitment of personnel with science and mathematics skills to meet future demands for high technology qualified officers. Actual implemenation is not anticipated before FY 88 or FY 89.

State OCS production was outstanding! OCS Class 1986 graduated the largest class since school year (SY 78). Reinstitution of State OCS annual production mission to 1,400 for the remainder of the POM period validated the OCS program as a viable source for quality junior officers. Increased emphasis in FY 86 resulted in the largest initial class enrollment since 1982. Final graduation for State OCS class 1986 was 1,556 candidates of which 1,405 were appointed in ARNG units. Those not commissioned received certificates of eligibility good for two years. State OCS class 1986 achieved a final attrition rate of 38% which was the lowest ever achieved. This accomplishment reflects the quality of the current OCS graduates and can be directly attributed to higher educational appointment requirements. A policy implemented in FY 83 will require two years of college by FY 89 as a qualification for appointment. Due to projected ROTC shortages through FY 90, State OCS appointments are expected to equal or exceed ROTC accessions. Performances during FY 85 and FY 86 indicate that the State OCS system must be relied upon to help meet ARNG officers needs in both the near and long term. The chart (5) below shows the source of all ARNG commissioned officer gains.

Chart 5

ARNG COMMISSIONED OFFICER GAINS

	FY 83	FY 84	FY 85	FY 86	FY 87*
ROTC 1	1,966	1,621	1,312	507	1,370
STATE OCS	1,423	1,236	1,147	1,405	1,400
RC OCS	230	101	93	119	147
USAR TRF	558	410	895	2,098	915
OTHER**	486	541	604	795	618
TOTAL	4,663	3,909	4,051	4,924	4,450

* PROJECTED

** INCLUDES DIRECT APPOINTMENTS; ACTIVE COMPONENT OCS GRADS OF BRANCH IMMATERIAL OFFICER CANDIDATE COURSE; RETURN FROM EAD, USMA GRADUATES, ETC.

In addition to the previously mentioned ROTC shortage, another factor that contributed to the overall officer deficit was the reduction of warrant officer (WO) appointments caused by the implementation of the Warrant Officer Training System (WOTS). This program ended the direct appointment authority for technical service skill WO and implemented a three-phased training and certification process which takes approximately three years to complete. Actions are continuing to develop alternatives to the WOTS process.

The chronic shortages of Combat Arms captains and Medical Corps officers also contributed to the overall shortage. ROTC is expected to remain an important long-term source for lieutenants. Future strength and accessions policies will continue to encourage aggressive, innovative recruiting and retention measures to meet required end strengths. Army Medical Department

(AMEDD) accessions are likely to remain short of programmed, but special efforts by AMEDD full-time recruiters are expected to continue reducing the deficit. Achievement of the FY 87 objective and beyond will require continued emphasis on these programs to maximize all recruiting opportunities.

The Army National Guard Lieutenants Management Team (ALMT), implemented in July 1985, was a true success story in 1986. ALMT was formed to serve a dual function; first screen the IRR for company grade officers to fill current ARNG vacancies and second to serve as a national referral agency for procurring Reserve Forces Duty (RFD) lieutenants into the ARNG. The 1986 RFD board netted the referral of 950 lieutenants to the Army National Guard. Six months later 507 of those referrals had become accessions. The IRR was successfully screened and resulted in the accession of 1,434 officers. Many of these IRR officers were 2LTs from the previous year that had not yet become active in Reserve units. The IRR and RFD board accessions together netted a gain of 1941 officers for the ARNG in FY 86. At the end of FY 86, this 3-man team was converted from short tour status to long tour AGR management.

Enlisted Management Programs

Enlisted strength in the ARNG grew by 5,015 in FY 86. Enlisted gains in FY 86 offset losses by 10.6%. Gains were also noted in the enlisted female strength of the ARNG that grew by 3.9% or by 811 female soldiers. This increase in female enlisted strength is a positive trend considering that 66% of the positions in the ARNG are closed to the assignment of female soldiers. Female enlisted strength at the end of FY 86 was 5.3% of the total enlisted strength. Chart 6 shows the growth in female strength and the relative strength of both officer and enlisted ranks.

Chart 6

FEMALE STRENGTH

	FY 83	FY 84	FY 85	FY 86	FY 87
OFFICERS	2,051	2,073	2,209	2,435	2,300
ENLISTED	20,012	20,465	20,586	21,397	21,800
TOTAL	22,063	22,538	22,795	23,832	24,100
% BELOW REFLECT FEMALE STRENGTH AS A % OF TOTAL ARNG STRENGTH FOR OFFICERS, ENLISTED, & OVERALL					
% OF OFF STR	4.9	5.0	5.2	5.6	5.2
% OF ENL STR	5.3	5.2	5.2	5.3	5.3
% OF TOT STR	5.3	5.2	5.2	5.3	5.2

Minority enlisted gains (Chart 7) in FY 86 were 3.1% greater than losses or 182 soldiers. Black enlisted strength grew by 1% or 775 soldiers. Black enlisted strength at the end of FY 86 was 18.4% of the total ARNG enlisted strength.

Chart 7

ARNG MINORITY STRENGTH - FY 86

	OFF	ENL	TOTAL	PERCENT OF PAID STRENGTH
BLACK	2,208	73,877	76,085	17.0%
OTHER	2,239	34,951	37,190	8.3%
TOTAL	4,447	108,828	113,275	25.3%

The beginning of a new era in the Army National Guard (ARNG) In-Service Recruiting (ISR) Program began on 5 May 1986. Personnel separating from active duty with the Regular Army who desire membership in the ARNG are now able to enlist directly into units of the ARNG under the In-Service Recruiting Direct Enlistment Program. During the period of May - Sep 86, the program produced 2,355 enlistments for 52 of the participating states and territories. The programmed objective for ARNG ISR direct enlistments for FY 87 is 10,000 and FY 88 is 10,000 anticipating no additional ISR personnel increases.

Enlisted accessions (Chart 8) for FY 86 totaled 82,763. Considering that the states received no additional production recruiter assets in FY 86, the total accessions for FY 86 paralleled the FY 85 achievement of 82,952. An aggressive High School recruiting program resulted in 88% of all non-prior service (NPS) enlistments for FY 86 being High School Diploma Graduates. This was 13% better than the goal of 75%. The total programmed FY 86 accession objective of 92,500 was based on receiving additional recruiter assets which failed to materialize. The accession objective for FY 87, is 81,700. An issue impacting on FY 87 and FY 88 objective achievement is the military education program (MEP) requirement. Increased NCO education is significant to the mobilization readiness of the Army National Guard (ARNG). This positive impact on mobilization readiness outweighs the loss of 116 recruiter workyears which would have produced an anticipated 4,640 enlistments.

Chart 8 ENLISTED ACCESSIONS (000)

	FY 84	FY 85	FY 86	GOAL FY 87
NPS	46.1	39.4	44.3	47.0
PS	39.4	43.5	38.5	34.0
TOTAL	85.5	82.9	82.8	81.0

Recruiting Incentives

The Selected Reserve Incentive Program (SRIP) continues to be an extremely important tool for recruitment and retention of a quality force. It allows targeting personnel resources into high priority units and shortage skills. Currently, over 150,000 soldiers in the Army National Guard are participating in one of the SRIP categories. Chart 9 depicts the trend in bonus contracts signed in several categories. The FY 86 Department of Defense Authorization Act currently allows the SRIP to continue through 30 Sep 87. Other changes were increases in the Reenlistment Bonus and Affiliation Bonus, extension of the Student Loan Repayment Program as a permanent program, the addition of the Specialized Training Assistance Program (STRAP) which provides a stipend to medical personnel in a career necessary training program, and a Student Loan Repayment Program for Health Professionals. These changes will certainly enhance the viability of SRIP and continue to provide the vital and necessary tools required to attract and retain quality soldiers.

Chart 9 BONUS CONTRACTS SIGNED

	FY 82	FY 83	FY 84	FY 85	FY 86
ENLIST	15,415	18,727	21,007	13,293	21,201
ED ASSIST	2,922	3,737	3,816	2,835	0
REENLIST	13,299	15,020	13,315	12,139	21,748
AFFILIATION	2,820	2,410	2,020	4,176	2,400
	34,456	39,894	40,158	32,443	45,349

The New GI Bill (NGIB) began on 1 Jul 85 and will continue in the test phase until 30 Jun 88. The NGIB is the first GI Bill for members of the Selected Reserve. Unlike the Active Component GI Bill, the NGIB for the Selected Reserve must be used by the soldiers while they are in-service. If the soldier leaves the Selected Reserve, he will receive no more benefits. The NGIB provides benefits for those pursuing undergraduate degrees who take from a half to a full course load. Currently, the Army National Guard has over 16,000 participants.

Targeting attrition of soldiers in high risk categories of Expiration Term of Service (ETS) and manageable Non-ETS losses will continue to be two of our primary goals. FY 86 resulted in the lowest attrition rate the Army National Guard (ARNG) has ever achieved at 19.6%. This is a 7.7% reduction in ARNG attrition since FY 79. Our efforts during FY 87 and FY 88 will be directed toward issuing and monitoring individual state/territory Attrition Management Goals. The ARNG goal for FY 87 is 18.8% and for FY 88 will be 18.3%. Areas of special emphasis will be to encourage chain-of-command involvement in retention programs and attrition management. Continued emphasis will be given to "Operation Care" (Command Accountability Retention Effort), the soldier accountability effort at all levels of command utilizing existing retention resources.

Professional Development Programs

The future leaders of the ARNG must achieve the highest levels of education if they are to lead a better educated force. Beginning in 1989, all officers must have completed at least two years of college. Additionally, all State OCS graduates must have completed two years of college prior to appointment and all officers appointed after September 30, 1983 must have received a baccalaureate degree before appointment to the rank of Major.

The Army Continuing Education System (ACES) provides various educational opportunities to Army National Guard (ARNG) enlisted soldiers, warrant officers, and commissioned officers who attend school part-time in meeting the Total Army educational goals. The purpose of ACES is to provide part-time educational opportunities to ARNG soldiers who work full-time, attend school part-time, and are not covered by the Reserve Component GI Bill; e.g., high school completion, part-time undergraduate, and part-time graduate students. If individuals are receiving veterans benefits (any GI Bill) for education, they are not authorized to receive ACES benefits. ARNG commissioned officers incur a four year Selected Reserve service obligation following the last class taken.

The main concern in the Warrant Officer Training System (WOTS) is the requirement for entry level training. Warrant officer entry level training, which ended direct appointment, is now required prior to warrant officer appointment. Warrant officer candidates must undergo two training phases: Phase 1 is a 6-week resident course or a combination of 129 credit hours nonresident and 2-weeks resident Warrant Officer Entry Course (WOEC); Phase 2 consists of technical certification resident training provided by the MOS proponents. Current technical certification resident courses are too long for Reserve Component participation. To accommodate the Reserve Components, some of the MOS proponents have implemented or are in the process of developing interim methods for technical certification. In addition to interim technical certification methods, proponents are developing long-term methods for implementation by 1 Oct 88.

The Professional Development of Officers Study (PDOS) of Jan 85 recommended the tailoring of a Pre-Command Course (PCC) for Reserve Component battalion/brigade commanders. The PDOS recommended like training for both the Active Component (AC) and Reserve Component (RC) with the RC course structured to meet the unique needs of the RC officer as well as including RC specific premobilization training requirements. A flexible program was needed to assist AC/RC commanders in preparation for and discharge of responsibilities in anticipating and responding to the premobilization environment. AC/RC commanders needed to develop and maintain a common operational language for wartime missions. A modularized concept was formulated to use existing training opportunities and to supplement that training to meet RC specific topics. This concept divided training into segments enabling the RC commander to attend one or more modules, in any sequence, thus providing maximum flexibility for attendance.

The US Army Commanders Training Program (CTP) was thus developed. The CTP encompasses all AC and RC PCC, and related courses, and places them under one title. The AC/RC interface becomes very beneficial in that Guardsmen now are afforded the opportunity to receive identical commanders training as that provided their AC counterparts.

The most significant module of the CTP is the RC Unit Operations Course (UOC). This module provides ARNG battalion, group and brigade commanders ARNG tailored instruction in unit administrative areas of training, mobilization/deployment planning, force structure, logistics, property accountability, personnel management, staff management and supervision, recruiting and retention, public affairs, community relations, and update information on ARNG support of Total Army Programs.

The pilot course of the RC UOC was conducted at the Command and General Staff College, Ft Leavenworth, KS 21-22 Jun 86. A total of 46 RC officers attended.

The development of the training program for RC commanders encourages a lengthier view of commander training where battalion level and higher training is integrated under an Individual Training Program (ITP). This program more clearly defines the training available and provides a coherent method among the various modules. While reinforcing the AC/RC link in war preparation, the modularization allows the RC commander the most flexibility for attendance and the greatest opportunity for AC/RC interface.

Non-commissioned officer (NCO) training programs continue to provide candidates with an opportunity to participate in resident training courses that contain the latest tactics, doctrine and systems (See Chart 10). The Army's ability to field a combat ready force of well trained soldiers requires the graduation and sustainment of RC forces which can, on short notice, deploy, fight and win. Beginning in the first quarter FY 88 the Reserve Component Noncommissioned Officer Education System (RCNCOES) will be restructured to include job related tasks in addition to Army leadership, training and battle field survival skills.

Chart 10

NUMBER OF NCOs TRAINED

	PNOC	BNOC	ANOC	SNOC	TOTAL
FY 77	505	2,098	1,324	497	4,424
FY 78	418	2,362	2,176	1,304	6,260
FY 79	123	2,806	3,538	1,268	7,735
FY 80	242	2,530	2,291	1,967	7,030
FY 81	1,406	4,728	4,879	1,915	12,928
FY 82	1,642	5,285	5,296	1,504	13,727
FY 83	1,485	5,211	5,376	1,351	13,423
FY 84	6,569	9,899	7,903	2,270	26,641
FY 85	12,302	9,086	9,198	2,684	33,270
FY 86	*20,645		7,879	3,309	31,833
TOTALS	45,337	44,005	49,860	18,069	157,271

* PLDC WAS THE ONLY PRIMARY LEVEL NCO COURSE TAUGHT DURING FY 86.

The revised RCNCOES will consist of three levels of progressive NCO education to provide the necessary knowledge and skills required to train individuals and small units to go to war. The revised RCNCOES will include the Primary Leadership Development Course (PLDC), the Basic Noncommissioned Officer Course (BNCOC) and Advanced Noncommissioned Officers Course (ANCOC). Extensive resources have been dedicated to provide this training opportunity to all drilling Army Guard personnel.

The number of Army Guard soldiers graduating from RCNCOES courses continues to escalate consistent with increased emphasis on training to one army standard and added reliance on RC forces for its role in mobilization and deployment. During FY 86 36,700 personnel graduated from RCNCOES courses. This number exceeded our goal by approximately 2,000. This positive influence of RCNCOES graduates on unit readiness is recognized throughout the Army. The Army National Guard has increased its funding support to ensure that courses are conducted to accomodate student participation in appropriate RCNCOES courses. This will be done in a variety of training modes that include IDT/AT periods and centrally funded ARNG full-time Regional NCO schools conducted on a continuing cyclic basis throughout the year. This system is expected to continue to produce graduates that meet or exceed ARNG RCNCOES training goals.

In addition to RCNCOES Courses developed for the citizen soldier who are unable to leave their civilian vocation for extended periods we have set professional standards for our full-time NCO workforce which are the same as their active component counterparts. To accomplish these standards, Active Guard/Reserve (AGR) personnel must successfully complete active component NCOES courses appropriate to their current military grade and skill level as a condition of continued employment in the AGR workforce and to qualify for promotion to the next higher grade. Military Technician personnel must meet the same military education requirements for promotion to the next higher grade as AGR members are required to meet for continued employment and promotion. This is a career development program which provides educational milestones for the continued development of the Army National Guard full-time support force. During FY 86 approximately 5,000 AGR and Military Technician personnel successfully completed active component NCOES courses. Estimates indicate that this figure will double in FY 87 as the program is brought into full compliance. This program is providing a highly qualified NCO corps by requiring completion of appropriate level NCO courses. Actual unit vacancies, time-in-grade, and time-in-service requirements must be met, in addition to the military education requirements, for promotion of ARNG NCO's.

The Army National Guard Noncommissioned Officer Battle Skills Course (BSC) was developed to sustain combat skills among our NCO's. BSC is 152 hours of instruction over 15 days which is offered on a continuing basis at Camp Robinson, Arkansas. All ARNG NCO's (CPL or higher) are eligible to attend. BSC provides training in the technical and tactical employment of infantry squad and platoon weapons, live fire exercises with these weapons and the use of supporting weapons available to the infantry squad and platoon, and battlefield survival techniques. More than 4,500 Army Guard noncommissioned officers have graduated from the BSC. An additional 2,500 are expected to graduate in FY 87.

Full-time Support

The number of full-time support personnel in the Army National Guard at the end of FY 86 was 52,317. This represented approximately 80 percent of required full-time support strength. In FY 88, an increase of 491 military technicians and 1,329 Active Guard/Reserve (AGR) soldiers are being requested. This will allow the Army Guard to attain 78 percent of required strength.

Chart 11	FULL-TIME SUPPORT (FTS) FY 85 - FY 91					AS OF 16 JAN 87	
	FY 85	FY 86	FY 87	FY 88	FY 89	FY 90	FY 91
ARNG TECHNICIANS	25,494	27,376	27,129	27,620	28,120	28,620	29,120
NGB DA CIVILIANS	399	392	406	406	406	406	406
FTM	13,080	15,957	17,242	18,571	19,900	23,900	27,900
DAS3	431	459	486	486	486	486	486
ROLAND	332	336	336	336	336	336	336
RECRUITING	3,243	3,366	3,436	3,436	3,436	3,436	3,436
AMEDD	38	46	44	44	44	44	44
RETENTION	357	325	325	325	325	325	325
SIDPERS	469	513	504	504	504	504	504
READINESS SPT	2,341	1,818	1,727	1,727	1,727	1,727	1,727
TNG & LOG SPT	520	647	647	647	647	647	647
AUGMENTATION SPT	128	183	183	183	183	183	183
STAT TOURS	120	130	130	130	130	130	130
TOTAL AGR	21,059	23,780	25,060	26,389	27,718	31,718	35,718
ACTIVE FTM	200	136	138	138	138	138	138
ACTIVE SR ADVISORS	675	534	540	540	540	540	540
ACTIVE ARMY-IG's	36	39	44	44	44	44	44
ACTIVE-NGB	62	60	62	62	62	62	62
TOTAL ACTIVE	973	769	784	784	784	794	784
TOTAL FTS	47,925	52,317	53,379	55,199	57,028	61,528	66,028
PAID END STRENGTH	439,952	446,127	452,681	458,800	464,900	472,400	482,000
FTUS AS A % OF PAID END STR	10.9%	11.7%	11.8%	12.0%	12.3%	13.0%	13.7%

Continued growth in full-time support is representative of the emphasis being placed on transforming the Army National Guard into a fully trained, fully equipped, modern force capable of rapid mobilization and deployment. The full-time support force is the backbone of the Army National Guard. Its sole purpose is to provide essential daily support to our Guard. Chart 11 provides a complete breakout of the number of full-time support personnel and of the utilization of AGR personnel. The full-time force is responsible for obtaining and retaining the personnel to man ARNG units. Essential individual and team training for soldiers and units is provided by unit support and training site instructors and by highly skilled military technicians. Technicians also provide most of the required maintenance on the increasingly modern and technical weapons systems entering the ARNG. Additionally, the full-time force alleviates the administrative burdens which can detract from training by providing competent support of administrative and logistics activities. Finally, the full-time support force at higher echelon headquarters provides the necessary day-to-day program management which enables effective operations in this era of increased national security missions for the National Guard. In short, every member of the full-time support force is dedicated to assisting the units achieve their readiness objectives. All military technician and AGR personnel are fully eligible for mobilization and deployment with their units or as individuals.

New growth in the program in FY 88 will be used to support ARNG units fielding MLRS, AH-64 (Apache), M-1 (Abrams), M-2 (Bradley), Hawk, Chapparal, and Mobile Subscriber Equipment weapons and combat support systems. Also, new full-time personnel will be used to complete required staffing of existing ARNG units, thereby allowing these units to increase their efficiency.

In the FY 87 budget, Congress allowed for no growth in controlled grades for AGR promotions. This freeze will cause substantial turmoil among AGR soldiers and, most acutely, among officers. All ARNG soldiers eligible for promotion must occupy positions that require the next higher grade. Therefore, the freeze on controlled grades will result in the loss of many experienced and valuable full-time soldiers who, even though they occupy the position of the next higher grade, cannot be promoted, and, in many cases, will be manditorily removed from the rolls. Sufficient senior grade structure has been requested in the budget, but it will require full Congressional support.

Some Congressmen have expressed the idea that AGR ARNG full-time support missions could be accomplished by the Active Component (AC). However, based on Army National Guard experience over several years, AC soldiers working in ARNG units have, collectively, not been an effective force. AC soldiers are not used to being isolated from their support base. Life is difficult for them when they work in areas without provision for PX, commissary, medical support, and recreation facilities. Also, active component soldiers are not familiar with the ARNG operating environment, organizational culture, and older series equipment. They must learn these things and, in so doing, lose time away from their main support mission. Generally speaking, AC soldiers in ARNG units are not easily assimilated into units prior to their reassignment.

The Army National Guard has developed a well-trained, experienced, and professional full-time support force from within its own resources. Chart 12 below provides a profile of AGR soldiers compiled from a comprehensive evaluation of the AGR program in fifty-three states and territories. This information reveals that the AGR force is active, experienced, mobile, qualified in the position in which they work, mature, well-educated, and hard-working. This is the kind of workforce that can produce the full-time support that ARNG units need to be capable of accomplishing their wartime missions.

Chart 12 PROFILE OF THE AGR FORCE (1986)

TOTAL AGR SOLDIERS (on board mid 1985)		19,601
TOTAL AGR SOLDIERS INTERVIEWed - 11%		2,133
Officer	256	
Warrant Officer	69	
Enlisted	1,808	
INTERVIEW INFORMATION		
AVERAGE TIME IN CURRENT POSITION (months)		22.2
AVERAGE TIME IN AGR STATUS (months)		33.3
AVERAGE SERVICE ON ACTIVE DUTY (months)		29.1
AVERAGE SERVICE IN NATIONAL GUARD (months)		117.0
AVERAGE AGE (years)		35.0
AVERAGE CIVILIAN EDUCATION (years)		14.0
% QUALIFIED IN DUTY POSITION		85.0
AVERAGE HOURS WORKED PER WEEK		51.0
% WHICH WOULD RELOCATE OUT OF STATE		66.5

The simple fact is that the AGR force is an experienced, well-trained, and effective force for ARNG units. Recent reports support this. The 1985 General Accounting Office (GAO) report, "Problems in Implementing the Army's Reserve Component Full-Time Manning Program," recognized that the overall impression in the field is that units are more capable of accomplishing their missions. It further recognizes that this is because of increased ARNG full-time support and particularly the increased levels of AGR support. The FY 88 budget request was developed with these things in mind.

To effectively and efficiently use these full-time assets, a plan has been developed which guides the use and placement of full-time personnel. This plan is based on Congressional guidelines provided in 1982. Through experience and analysis, AGR soldiers have been better suited for providing direct, full-time support to units. Military technicians, by contrast, are best suited for employment in support activities, particularly maintenance activities and most headquarters positions. To achieve maximum benefit from the full-time support force, the functions of AGR soldiers and technicians should be separated by aligning each to those responsibilities which are in concert with the purpose of each type of full-time support. The GAO concurred with this approach in their report and recommended that Congress allow this alignment to be complete.

Such an alignment has not yet been implemented because of Congressional language prohibiting the movement of technical positions to support activities. This language should be revised to remove the prohibition on the movement of technician positions and allow the implementation of an effective mix-of-force as required by Congress in 1982 and endorsed by the GAO report.Movement of technical positions will not affect encumbered technicians in units. Only vacant technician positions will be moved to satisfy other requirements in support activities. Further, all efforts will be made to ensure that technician upward mobility and career progression is not negatively impacted by the shifting of positions.

EQUIPPING THE GUARD

Unprecedented actions have been taken over the last few years to provide modern equipment to the Army Guard (See Chart 13). Even so, equipment shortages still continue to be a problem. Soldiers who must endure battle deserve not only the best and most modern equipment, but a full complement of equipment to help ensure complete destruction of the enemy while minimizing the loss of our own soldiers. The highest priority equipment shortages continue to be air defense artillery, communications, aviation, field artillery, and medical equipment.

Chart 13 NEW/MODERN EQUIPMENT ISSUED TO ARNG UNITS

- 45 M60A3 TANKS TO GOWEN FIELD FOR M60A3 DET FY 86
- 12 M60A3 TANKS TO E/82 CAV TRP (OR) FY 86
- 56 M60A3 TANKS TO 1-103 AR BN (PA) FY 86
- 60 M60A3 TANKS TO 1-803 AR BN (WA) FY 86
- 60 M60A3 TANKS TO 1-303 AR BN (WA) FY 86
- 9 M60A3 TANKS TO 3/303 CAV TRP (WA) FY 86
- 19 M60A3 TANKS TO 1/104 CAV SQDN (PA) FY 86
- 45 M60A3 TANKS TO CP SHELBY FOR M60A3 DET FY 86
  (8 FROM A/240 CAV TRP (KY), 37 FROM MAINZ ARMY DEPOT)
- 62 BFVs TO 3-141 MECH BN (TX) FY 86
- 32 BFVs TO 155 AR BDE (MS) FY 86
- 60 M60A3 TANKS TO 1-221 AR BN (NV) FY 87
- 45 M60A3 TANKS TO 1/278 AR CAV SQDN (TN) FY 87
- 45 M60A3 TANKS TO 2/278 AR CAV SQDN (TN) FY 87
- 45 M60A3 TANKS TO 3/278 AR CAV SQDN (TN) FY 87
- 60 M60A3 TANKS TO 1-252 AR BN (NC) FY 87
- 12 M60A3 TANKS TO E/151 CAV TRP (AR) FY 87
- 60 M60A3 TANKS TO 1-632 AR BN (WI) FY 87
- 9 M60A3 TANKS TO E/105 CAV TRP (WI) FY 87
- 60 M60A3 TANKS TO 1-210 AR BN (NY) FY 87
- 60 M60A3 TANKS TO 1-149 AR BN (CA) FY 87
- 60 M60A3 TANKS TO 1-185 AR BN (CA) FY 87
- 60 M60A3 TANKS TO 2-185 AR BN (CA) FY 87
- 60 M60A3 TANKS TO 3-185 AR BN (CA) FY 87
- 158 M60A3 TANKS TO 48 MECH BDE (GA) FY 87
- 63 BFVs TO 1-121 MECH BN (GA) FY 87
- 63 BFVs TO 2-121 MECH BN (GA) FY 87
- 6 BFVs TO 1-108 AR BN (GA) FY 87
- 6 BFVs TO 1-263 AR BN (SC) FY 87
- 20 BFVs TO E/348 CAV TRP (GA) FY 87

Ground Equipment

A proposal made in 1984 evolved into a final decision in May 1985 to accelerate modernization of the Army National Guard armor force. By the middle of FY 91, the Army Guard will be totally equipped with M1 Abrams tanks and M60A3 TTS (Tank Thermal Sight) tanks. Once the decision to modernize our armor force was made, we were immediately faced with the challenge of creating, manning, and equipping the two M60A3 Displaced Equipment Training (DET) sites to handle the monumental task of training more than 2,900 tank crews over a four year period. To date, that challenge has been met. The initial DET site at Gowen Field, Idaho, was fully operational in December 1985. The second DET site became fully operational at Camp Shelby, Mississippi, in August 1986.

We are also scheduled to receive 376 Bradley Fighting Vehicles (BFV) and 570 Improved TOW Vehicles (ITV) by FY 91. As of the end of FY 86, 157 BFVs and 70 ITVs have been delivered to the Army Guard. New Equipment Training (NET) is scheduled with the fielding of these systems in Guard units.

The Army National Guard has three field artillery modernization goals: first, increase the capabilities of firing units by replacing or modernizing old weapon systems; second, automate the fire direction capabilities of all units; and third, optimize the fire support capabilities of units. We have been successful in automating our fire direction capabilities. We are making progress in fielding the Battery Computer System (BCS); however, at the current rate, fielding will not be completed until FY 92. The Backup Computer System (BUCS), a hand held computer which is designed to backup the BCS in cases of power failure, has been fielded to all field artillery units. This system, although designed as a backup system, is now the primary automated means of fire direction in a majority of our units until the BCS is completely fielded in the Army Guard.

Modernization of artillery weapons systems continues to be a challenge. It was anticipated that all M-114 series (pre-Korean vintage) 155mm howitzers would be replaced by the M-198 (155mm) howitzer in general support units.

Funding limitations will require M-114 retention in the force for an indefinite period of time. The M-109 series 155mm self-propelled howitzers are still projected for fielding, reducing the current shortage by FY 92. Additional howitzers may become available through displacement from the Active Component if the Multiple Launch Rocket System (MLRS) procurement program continues. One corps level MLRS battalion is currently scheduled for fielding in the Army National Guard in FY 88. MLRS is not currently scheduled for delivery to ARNG divisions. Therefore, nine Army Guard divisions will not have the same capability as Active Component divisions. Procurement by Department of the Army of the British Light Gun (BLG) L-119 (105mm) is scheduled to begin in FY 87. The L-119 howitzer is projected for fielding to the units in our light infantry division and separate infantry brigades.

Modernization of fire support has shown the least progress in the overall modernization of field artillery, although tremendous improvement can be seen in units which have received the Fire Support Team Vehicle (FISTV). The FISTV provides the capability to direct high performance aircraft and laser guided munitions to a point target. Lack of additional fire support equipment hinders the total capability to optimize fire direction and howitzers. Fire support equipment, automated fire direction, and modern weapons systems such as the M-198 and MLRS are key to an effective artillery force.

The Army distributed equipment worth $1.6 Billion to the Army National Guard in FY 86, however, a $10.7 billion shortage of equipment still exists. The distributed equipment included such major systems as the M60A3 Tank Thermal Sight Tank, Bradley Fighting Vehicle (BFV), Improved TOW Vehicle (ITV), M-198 Howitzer, Battery Computer System (BCS), Chaparral, Heavy Expandable Mobility Tactical Truck (HEMTT), M923 5 Ton Cargo Truck, and the Commercial Utility Cargo Vehicle (CUCV). The Army projects equipment deliveries to the Army Guard worth $1.7 Billion in FY 87. In addition to these major systems, FY 87 and FY 88 deliveries will include the High Mobility Multipurpose Wheeled Vehicle (HMMWV), Firefinder, Chaparral, and the M1 Abrams tank.

Since FY 82, Congress has provided separate appropriations totaling $1,013.3 Million to the Army National Guard for procurement of miscellaneous equipment. These separately appropriated dollars have been used to improve near term readiness in early deploying Army Guard units. In FY 87, Congress provided a separate appropriation of $146.0 Million for procurement of equipment. This appropriation includes funding for UH-60 Blackhawk helicopters, M923 5 Ton Cargo trucks, Improved High Frequency Radios, training devices, M113 personnel carriers, and $44 Million for miscellaneous equipment. The FY 86 Congressional Dedicated Procurement Program has resourced and additional 316 M113 personnel carriers. This brings this line item to C-3 level of fill, however, a shortage of 1684 M113s still exists through 1989. The miscellaneous equipment funds will be utilized to procure Improved TOW Vehicle conversion kits and Fire Support Team Vehicles (FISTV) and for projects which will facilitate the improved delivery, storage, and maintenance of new equipment the Army Guard has received, in addition to improving ARNG training.

Communications-Electronics Equipment

Since May 1985, five of ten ARNG Divisional Signal Battalions have been equipped with multichannel Army Tactical Area Communications Systems. These systems were procured with funds made available by Congress for C-E equipment in 1979. The remaining five division signal battalions will be fielded by the close of FY 87.

The Alaska ARNG Arctic Scout Group (207th IN Gp) was fielded all new Improved High Frequency Radios (IHFR) for use in Scout reconnaissance and command and control operations. These were issued at the rate of one IHFR manpack radio per scout team with vehicular/tactical Operations Center mounted IHFR as base station radios. The IHFRs are much lighter, easier to tune, and have greatly improved reliability and maintainability. Subsequent fieldings will be to other high priority ARNG units including Roundout, Special Forces, and Long Range Surveillance units.

Mobile Subscriber Equipment (MSE) for ARNG Corps and Divisional Signal Battalions is on schedule as a Total Army program. ARNG units supporting III Corps will begin receiving MSE in FY 89 with other ARNG Signal Battalions receiving MSE afterwards, also on a corps fielding basis. The increased capability of the MSE system enhances the combat commander's ability to maneuver on the Airland battlefield while simultaneously maintaining effective command and control on a highly electronic battlefield. The synchronization of MSE, the ARNG Tank Modernization program, and Artillery upgrade will have a synergistic effect on both readiness and capability in ARNG combat units.

Combat Net Radio (CNR) COMSEC has been distributed to high priority ARNG combat units over the past year. These fieldings of airborne and ground based VINSON will continue with ARNG Divisions and command and control headquarters in FY 87.

The Army Guard Communications-Electronics modernization is accelerating with the additional funds realized through Congressionally Dedicated Procurement appropriations.

ADA Equipment

The majority of the Air Defense weapons systems in the ARNG is the aged Duster. The Duster is projected to remain in the ARNG inventory until approximately 1992. The ARNG has equipped four batteries with the Chaparral. Chaparral will be fielded to fifteen additional ARNG batteries by 1990. Nine batteries of Hawk systems are presently scheduled to be fielded by 1990. Four battalions of Dusters will convert to Gun/Stinger battalions in 1988.

Aviation

Currently, the ARNG has a requirement for 546 (attack, anti-tank) helicopters. This is an increase of 106 helicopters from the previous FY 86 requirement. The current ARNG AH-1S inventory is 167 aircraft. This total includes 49 fully modernized attack helicopters (FAH-1S) that were procured for the ARNG. This is the last of four consecutive Congressional initiatives (80-83) in which Congress approved the procurement of 52 AH-1S attack helicopters for the ARNG. Three AH-1Ss are still owed and are scheduled for delivery in FY 87. Additionally, Congress approved the modification of 87 AH-1G (older model) attack helicopters by providing funds for a 3 year program (FY 84-86) to upgrade the AH-1G to the AH-1S configuration. The first input of 29 AH-1G to the Bell Helicopter Plant began in FY 85 with continued input at the rate of 29 in FY 86 and 29 aircraft scheduled in FY 87. In FY 86, the ARNG received 11 of the (AH-1G to AH-1S) modified aircraft and is scheduled to receive an additional 47 aircraft in FY 87, followed by the remaining 29 modified aircraft in FY 88. In FY 86, 28 AH-1S helicopters were received from Army accounts. These aircraft are fallout aircraft that resulted from the fielding of the advanced attack helicopter (AH-64) to the Active Army. In FY 85 Congress directed the assignment of 18 AH-64 aircraft to the ARNG. Six of these aircraft will be assigned to the North Carolina ARNG in FY 87 and twelve additional in FY 88. These aircraft will be assigned to a Corps level attack helicopter battalion as will an additional 18 AH-64s directed by Congress for assignment to the ARNG in the FY 87 Authorization Act. Delivery of these aircraft is scheduled in FY88 to FY 89 to the Corps Attack Helicopter Battalion in South Carolina. In FY 88 the AH-1S inventory is scheduled to be 342 attack helicopters. The ARNG will still have a shortage of 266 aircraft in FY 87 and 195 attack helicopters in FY 88. The existing AH-1S shortage is presently being satisfied by 201 UH-1M substitute Vietnam era helicopters which have limited sustainability or anti-tank capability. Chart 14 provides a complete picture of attack helicopter requirements versus actual on hand.

Chart 14

ATTACK HELICOPTERS

	ON HAND END OF FY 86					
FY 87	AH1S		AUTHORIZED SUBS ON HAND			
REQ	MC	MOD	AH1G	TH1G	UH1M	TOTAL
546	49	118	23	1	201	392

PROJECTED FOR FIELDING			
	AH1S		
	MC	MOD	AH64
FY 87	3	60	6
FY 88		50	24
TOTAL	3	110	30

DELIVERY OF AH1Gs TO BE CONVERTED TO AH1S;LAST 29 BEGINS FY 87

The ARNG has programmed requirements for 118 UH-60 helicopters by FY 89. In FY 85 Congress approved procurement of eight UH-60s for the ARNG. These aircraft were assigned to high priority units in Alaska, Kentucky, and Oklahoma. The Department of the Army has programmed the issue of 75 additional UH-60 helicopters by end of FY 91. The UH-60 inventory is scheduled to be 83 aircraft at the end of FY 91. The current inventory is 16 assigned UH-60 helicopters.

Congress approved the procurement of six C-12 aircraft in FY 85. Five of these aircraft were delivered in FY 86 and the remaining aircraft are scheduled for delivery in First Quarter FY 87. Congress also approved the procurement of six C-12 or (similar type aircraft depending upon the competive bidding processes) for the ARNG in FY 86. Delivery of these aircraft are scheduled in FY 87. Congress approved the procurement of C-12 aircraft for the ARNG in FY 82, 83, 85, and 86. Total C-12 inventory by end of FY 87 will be 24 assigned aircraft.

As a result of recent and past Congressional support, the ARNG has received several new aircraft systems which has allowed the ARNG to phase out older aircraft (aircraft over 20 years old). Aircraft safety, reliability, aircrew training, and recruiting/retention has been and will continue to be enhanced as new aircraft systems are introduced into the ARNG.

Organizational Clothing and Equipment

The Organizational Clothing and Equipment (OCE) Program continues to show improvement as shortages are being reduced in the significant areas of Chemical Defense Equipment (CDE) and Camouflage Support Systems. The Army National Guard requisitioned 423,000 Battle Dress Overgarments (BDO) thru FY 86 of which 161,000 have been received. When received, the BDO will release the older type Chemical Protective Overgarment (CPO) for training. ARNG units have received approximately 40,000 camouflage support sets in FY 86. The fielding of Personnel Armor System, Ground Troop, is progressing with 189,000 received and 215,000 scheduled for delivery in FY 87. The fielding of the Combat Vehicle Crewman's Uniform System (CVC) begins in FY 87 with 14,500 sets scheduled for delivery.

The OCE modernization program is progressing. The Extended Cold Weather Clothing System (ECWCS), Aviation Survival Vest, Extreme Cold Weather Sleep System (ECWSS), Individual Tactical Load Bearing Vest (ITLBV), Field Pack with Internal Frame, Individual Multi-Purpose Shelter, Tactical Chemical Gloves, Aircrew Uniform Intergrated Battlefield (AUIB), Aircrew Uniform non-NBC, Ballistic Eye Protection, Cold Weather Aviation Parka, and the Multi-purpose Overboot (MULO) are being fielded. These items are Department of the Army developed systems and will be fielded to ARNG in FY 87-89. These modernization efforts are essential to ensure the ARNG is prepared and equipped for combat as an integral part of the Total Army.

Repair Parts

Army Guard repair parts funding requirements reflect maintenance costs directly related to the large quantity of ARNG equipment to be supported and to the repair of deterioration caused by the increased use of ARNG equipment to support training programs. The considerable resources appropriated in FY 86 and FY 87 to support the ARNG maintenance program have and will result in significant improvements to the ARNG equipment readiness posture. The FY 86 repair parts funding allocation of $209.1 million provided an increase of $34.2 million above the FY 85 level. The most notable FY 86 readiness improvement was realized in the increased stockage levels of combat essential prescribed load list (PLL) repair parts at the unit level. In addition, FY 86 funding was used to replace authorized stockage list (ASL) items consumed in FY 85. The FY 87 repair parts allocation of $246.8 million provides a significant increase of $37.7 million above the FY 86 funded level. This increase will be used to support projected increases in day-to-day maintenance operations and to increase ARNG repair parts stockage levels needed to support and improve mobilization and deployment readiness. The FY 88 programmed repair parts funding allocation of $223.2 million, however, provides a significant decrease of $23.6 million below the FY 87 allocation. The FY 88 funding level should provide adequate resources to fully support ARNG day-to-day maintenance operations, but, the decreased repair parts funding level programmed for FY 88 could result in a degraded ARNG materiel readiness posture. The most significant decrease in the ARNG readiness posture will be realized when unit on-hand repair parts stockage levels are depleted to near zero to prevent an unacceptable equipment readiness posture.

Depot Maintenance

The $72.6 million depot maintenance program funding allocation fully supports Army National Guard (ARNG) FY88 overhaul requirements. A series of fleet management depot rebuild programs designed to improve the mission capability of ARNG equipment will continue in FY88. Major rebuild programs are scheduled for aircraft, combat vehicles, missile systems, trucks, and medical equipment that will significantly improve ARNG equipment readiness. The ARNG rustproofing and rust repair program has improved the condition of truck bodies and chassis, extending the service life of tactical vehicles. Significant aviation depot maintenance programs are planned for FY88 that will provide increased reliability of ARNG aircraft and enhance the readiness of aviation units. The ARNG depot maintenance program is one of the most important methods used to obtain continued improvement in the ARNG materiel readiness posture. This program provides the opportunity to maintain and sustain the older models of equipment in our inventory at the highest possible levels of readiness, until new replacement equipment can be issued.

GUARD FACILITIES

Military Construction/Facilities

Facilities construction and base operations programs continue the upward funding trends for support to missions and readiness goals of the Army National Guard. The major thrusts of the Military Construction program emphasize the new or modernized facility demands of the expanding force structure as well as the training and maintenance requirements generated by the influx of new combat and combat support equipment. The majority of the funding growth programed is to support force structure and training requirements.

The funding of the military construction program has increased over the past few years. However, the rate of increase has not been sufficient to overcome the aging and substandard condition of the facility inventory. Nor has it been sufficient to support the facilities required by new missions and force structure. Consequently, renewal of the existing facilities continues to be underfunded and the Army National Guard has been unable to reduce the backlog of construction (See Chart 15). The current replacement cycle is approximately 88 years based on the funding available maeasured against the construction need. An extensive amount of substandard conditions in the existing facilities inventory was uncovered during recent surveys conducted to determine the home station armory and support facilities needs of the expanded force structure. Requirements to correct these conditions has significantly increased this backlog to the current level of $2.1 billion. This requirement includes $1 billion for 788 new and replacement armory projects. The remainder consists fof over 500 projects for training sites, maintenance and aviation facilities, and for minor construction and design efforts. The minor construction needs, projects costing $400,000 and under, constitute $285 million of the overall requirement. The continued aging of the facility inventory can best be illustrated by the number of armories over 25 years old The number increased from 1,337 in 1982 to 1,867 in 1986. The total number of armories only increased by 150 during the same period. More of these older substandard armories must be replaced as mission and training demands increase. This, of course, adds to the armory backlog of construction. Continued use of the aging and often substandard facilities will only increase the requirement for additional maintenance, repair, and operations funds.

Chart 15

CONSTRUCTION BACKLOG

	FY 71		FY 86*		FY 88**	
Number Projects/$M	Proj.	$M	Proj.	$M	Proj.	$M
ARMORY	706	168	468	360	788	1030
NON ARMORY (LESS TRNG SITE)	225	53	140	120	266	622
TRAINING SITE	86	45	170	130	283	329
MINOR CONSTRUC/ PLANNING	-	35	-	290	-	500
TOTALS	1017	301	778	900	1337	2481

*ESTIMATED **NOT INCLUDING UNSPECIFIED LOCATION REQUIREMENTS

Command priority is being given to the force structure construction initiatives, such as the reorganization of the 29th Division (Light), the 35th Division (Mechanized), and the restructuring of combat aviation units. Armory construction projects authorized in the FY 1987 military construction program for units of the 29th Division will be reaching completion. Eighteen armory projects, including the headquarters for both divisions, are requested in the FY 88 and FY 89 construction programs. One-third of the 70 requested projects in the FY 88 program directly support units involved in force structure initiatives.

The program to modernize Army National Guard training capabilities is intended to maximize the training available for improving individual skills and unit readiness. Because of the limited time available to accomplish these training tasks, facilities must be designed to incorporate appropriate technologies to minimize nonproductive training time. New facilities programed for these purposes receive widespread support from the Army in terms of training device procurement and resources. In the fiscal year 1988 program, 20 projects and about a quarter of the requested funds for major construction are for training and training site improvements. The most visable of these projects is the multipurpose complex planned at Gowen Field, Idaho. This large range complex supports the goal to advance the combat training capabilities of the Army National Guard and other users. It permits training under simulated attack conditions for live-fire armor, artillery, attack gunship, and mechanized infantry maneuver units. A second similar range is programed later to be constructed at Camp Grayling, Michigan for training units from the eastern region of the United States. Other new range projects include the new automated rifle ranges developed for the Army. These are planned for construction at the larger Army National Guard training sites in Florida, Mississippi and Minnesota. The ranges fulfill the demands for increased numbers of Guardsmen and others to master and sustain necessary marksmanship skills. Other new facilities which support new missions include the first of a series of centers dedicated to the full-time training of maintenance personnel. These centers will be located in specific regions and, using actual equipment and simulators, provide the specialized training required to support the Ml "Abrams" tank, Bradley fighting vehicles and other modern combat weapons. For overnight stay requirements caused by the up-tempo in training, winterized barracks and support buildings for year round operations are to be constructed at Camp Dawson, West Virginia, Camp Ripley, Minnesota and Camp Grayling, Michigan.

Modernization of surface equipment maintenance facilities to increase productivity and equipment readiness commands special attention. The facility that is predominate to this effort is the organizational maintenance shop which supports the combat and support equipment at the unit level. These facilities provide individual units with the ability to maintain its equipment in a high state of readiness. At many of the existing facilities, maintenance must be performed exposed to the elements or in overcrowded and substandard conditions. This program is generally projects for the renewal of these facilities. The direct support or general support maintenance shops, such as the Mobilization and Training Equipment Shops (MATES) are being modernized with specialized maintenance work bays to support the new combat equipment like the M1 Tank.

Aviation support facilities are designed for both flight operation and training functions and for the maintenance of assigned aircraft. New and replacement facilities incorporate design provisions for the introduction of advanced aircraft such as the UH60 "Blackhawk" and AH64 "Apache" gunships. Most of the aviation construction projects requested in the fiscal year 1988 support force structure initiatives. Besides supporting the force structure requirement, an improved and expanded maintenance capability is provided. Also, these facilities support the same goals for productivity and equipment readiness as the surface equipment maintenance facilities renewal program.

Backlog of Maintenance and Repair (BMAR) Chart 16

The Army National Guard reported a backlog of Maintenance and Repair (BMAR) of $15.2 million (estimated) at the end of FY 78. During FY 78, the Army National Guard initiated an extensive study to establish an actual and more accurate BMAR. Initial and subsequent studies/results indicated the reported BMAR was too low. After comparing two collaborating BMAR reports (FY 78 and FY 79) from each State, the Army National Guard BMAR program was revised with new, more substantial projections being developed.

- The BMAR increased from $15.2 million (estimated) in FY 78 to $59.2 million (approved) at the end of FY 83.

- The increasing costs of utilities, labor, additional security and supplies have absorbed funds which otherwise would have been utilized for maintenance and repair. The result has been a rapidly growing backlog.

Chart 16 BACKLOG OF MAINTENANCE & REPAIR (BMAR)
($ IN MILLIONS)

	MAINTENANCE & REPAIR PROGRAM	BMAR END OF YEAR
FY 85	59.2	42.2
FY 86	58.3	36.9
FY 87	62.5	37.0
FY 88	85.1	35.0
FY 89	97.2	32.8
FY 90	105.9	30.5

BASED ON FUNDING LEVELS (PROJECTED), BMAR WILL BE REDUCED TO THE CONGRESSIONALLY MANDATED LEVEL IN FY 94.

INCLUDES FUNDING APPLIED DIRECTLY FOR BMAR REDUCTION.

New security measures are mandated for the safeguarding of aircraft and equipment to counteract the increasing threat of terrorism. Installation and monitoring of sophisticated electronic systems, such as remote low-light television and alarms, are costly and manpower intensive. Measures to strengthen existing security capabilities by increasing area lighting, fencing and installing electrically operated vehicle and aircraft gates have also increased the funding requirements for base operations programs.

Again in FY 86, funding was applied directly to BMAR reduction resulting in a $5.3 million reduction. At the end of FY 86, BMAR stood at

$36 million. This reduction was based on a number of factors: fund migration, an aggressive program for BMAR reduction, facilities removed from support based on new construction coming on line, and direct application of all available funding to this program. Based on proposed funding levels as currently programed throughout the POM years, the ARNG will not meet the congressionally mandated level of $15.2 million until FY 94.

Army Backlog of Maintenance and Repair (ABMAR).

Maintenance and repair of State owned/operated armories, for which the States are 100% responsible, has not kept pace with current requirements. A study by the General Accounting Office (GAO) reflected the inadequacy of the maintenance and repair of armories. An Army backlog of maintenance and repair (ABMAR) was subsequently established for each State. Based upon the GAO report, the Congress authorized and appropriated $33 million in FY 86 to assist the States in operating and maintaining their armories in an effort to reduce ABMAR. This assistance resulted in many major maintenance and repair projects being undertaken at these facilities and aided in defraying utility costs. For FY 87, Congress authorized such additional funds as necessary to support increased Federal support to Army National Guard armories. However, no funds were appropriated for this purpose and the availability of future funding remains uncertain.

INFORMATION MANAGEMENT

In June 1986, the Army National Guard (ARNG) received $11.4 Million to upgrade current office equipment and procure additional microcomputers under an office of the Secretary of Defense initiative. This was the first phase of a three year program to provide office automation to the Army Guard. During fiscal year 1988 ARNG will procure 4,000 additional microcomputers using RC automation funds. This will provide office automation capability to Armory level for the first time, thereby providing a more responsive peacetime ability to report accurate and timely data to Army National Guard Commanders.

Additionally, the Army National Guard will continue to move forward to create data bases designed to provide more responsive information to active Army Systems. This will be done by implementing the ARNG Information Systems Plan for $8.7 Million in FY 88 and $15 Million in FY 89. The plan was developed over a period of eighteen months beginning in January 1984 and concluding in mid-1985. All 54 States and Territories participated in the development to assure that the complete information needs of the ARNG were identified. In FY 88 the plan will be updated to reflect the continuing evolution of the Guard's automation and information needs. The Information Systems Plan complements the Reserve Component Automation System (RCAS) which is being implemented by the Army. The Army National Guard will continue to work within the total Army Architecture to effectively manage information program of the ARNG.

TRAINING THE GUARD

Today's Army Guard is far removed from the old image of "weekend warrior." Instead, today's Guard soldiers are being trained with the intensity required of professionals who will go to war on a moment's notice. There will be no time to train after mobilization as 85% of the Guard is to deploy in 60 days or less. Consequently, the highly motivated men and women of the Army Guard are participating in meaningful and realistic training now - training which truly tests their stamina and skills.

Unit Training

The continuing high state of training readiness within ARNG units is demonstrated by the number and the roles of Guard units participating in Joint Chiefs of Staff and Army Major Command exercises. The FY 86 exercise program was exceptionally noteworthy for the Guard, as FY 86 became the first time that major ARNG combat units deployed personnel and equipment to Germany, Korea, Italy, Panama, and Honduras all in the same year. Another first was the deployment of a guard combat brigade with all its equipment to train in an overseas location. It also saw the largest Guard combat unit deployment to Korea and the first overseas deployment of a combat element from the unique 29th Light Infantry Division. Additionally, ARNG expanded its participation in both large and small scale exercises in Latin America.

The 32d Separate Infantry Brigade (Mechanized), Wisconsin Army National Guard, became the largest Reserve Component organization ever to deploy personnel and equipment for training outside the United States when it participated in exercise REFORGER '86. The 3,500 members of the 32d Brigade joined over 4,000 additional Guardsmen participating in REFORGER '86, including units drawing equipment from POMCUS (Prepositioned Organizational Material Configured in Unit Sets) stocks, shipping equipment, or sharing and borrowing equipment from active Army units stationed in Europe. For REFORGER '87, approximately 1,000 fewer people, but 18 more separate units, will participate. REFORGER '87 will also present unprecedented challenges for the ARNG, as a number of Guard units have been assigned critical exercise planning and coordination roles previously always accomplished by European-based active Army units. That reliance upon the Guard to execute such critical missions indicates the high degree of confidence accorded the ARNG by the active Army. See Chart 17 below for total deployment to overseas training.

Chart 17

OVERSEAS DEPLOYMENT TRAINING

	FY 85	FY 86	FY 87
UNITS/UNIT CELLS	865	1,109	1,046
PERSONNEL	25,717	27,617	26,130

Task Force 1-184, consisting of a full mechanized infantry battalion plus an attached tank company, combat engineer platoon, self-propelled artillery battery, and combat service support elements, from the California Army National Guard's 40th Infantry (Mechanized) Division became the first Guard combat unit to participate in the free world's largest annual joint/combined exercise series, TEAM SPIRIT '86. Over one hundred other Army National Guard units and unit cells participated in TEAM SPIRIT '86. Another task force from the 40th Division will deploy its personnel and equipment to TEAM SPIRIT '87, and will again be joined by approximately 100 additional Guard units and cells.

North Carolina's 30th Infantry (Mechanized) Brigade deployed a mechanized task force to Italy for exercise DISPLAY DETERMINATION '86. The 30th Brigade is the only US Army combat element to deploy personnel and equipment to Italy for that annual NATO exercise. Thirty-three other Army Guard units, representing the CAPSTONE alignment of the 30th Brigade, participated in DISPLAY DETERMINATION '86. In 1987, most of DISPLAY DETERMINATION will be conducted in Turkey, with Army Guard units deploying to Turkey to provide support for active Army combat units there.

Some 3,500 Army Guardsmen from 42 combat support and combat service support units participated in exercise GALLANT EAGLE '86. Army Guard units provided logistical support to Third US Army combat units.

An infantry battalion from Florida's 53d Infantry Brigade deployed to Panama for the annual US Southern Command exercise KINDLE LIBERTY. That Guard combat unit was joined by additional Guard units from Puerto Rico, and trained with the active Army's 193d Infantry Brigade from Panama. Both Florida and Puerto Rico ARNG units will also participate in KINDLE LIBERTY '87.

The Puerto Rico Army National Guard also played a leading role in exercise SOLID SHIELD. Infantry and supporting units from Puerto Rico's 92d Infantry Brigade trained primarily with the US Marine Corps in that annual Caribbean exercise in Puerto Rico. Another infantry battalion from the 92d Brigade, along with several other ARNG units, will participate in exercise SOLID SHIELD '88.

One of the most significant events of the FY 86 exercise program was the participation of Virginia's Company B, 1st Battalion, 116th Infantry, from the 29th Infantry Division (Light) in NATO exercise BLUE FOX '86. Company B's participation marked the first overseas deployment of an element from the 29th Division since its activation as a light infantry division. Company B also became the first Reserve Component combat unit and the first US Army unit for a number of years to train with the Norwegian Army in their major triennial exercise series.

BLAZING TRAILS, the umbrella title for all Reserve Component engineer exercises, expanded from one to two major exercise projects in FY 86. During FY 86, over 4,000 Guard personnel from 16 different states conducted engineer and logistical training in Panama and Hondorus. Another 5,500 Guard personnel will train in Central and South America during BLAZING TRAILS '87.

The Army National Guard participation in the Overseas Deployment Training Program reached new heights during FY 86, with 26,717 personnel from 1,107 units and unit cells training in 35 countries around the world. The Overseas Deployment Training continues to provide unique mission training, mobilization, and deployment benefits not available by any other means. More than 29,000 Guardsmen are currently scheduled to train worldwide under the Overseas Deployment Training Program in 1987.

Two Army National Guard battalions, the 2d Battalion, 156th Infantry, Louisiana ARNG, and the 1st Battalion, 263d Armor, South Carolina ARNG trained at the US Army National Training Center (NTC) at Fort Irwin, California in 1986. Fourteen other combat organizations trained at the NTC under the Leader Training Program during FY 86. FY 87 will be especially significant for ARNG training at the NTC, as Louisiana's 256th Infantry (Mechanized) Brigade becomes the first Reserve Component Brigade to plan, control, and conduct a full brigade training rotation at the NTC. In addition to the brigade training rotation, the 2d Battalion, 252d Armor from the North Carolina Army National Guard will train with the 1st Brigade, 2d Armor Division in a training rotation, and 14 more combat organizations will conduct Leader Training at the NTC. Additionally, five infantry companies and one combat engineer company will train with the Active Army Opposing Forces (OPFOR) detachment which is permanently stationed at the NTC.

Individual Training

The Army National Guard Key Personnel Update Program (KPUP) continues to be one of our most effective programs for increasing the individual proficiency of National Guard soldiers. Over 2,400 ARNG personnel teamed with active Army units stationed outside the United States under KPUP in FY 86. Other Guard personnel trained with their active Army counterparts covering almost the entire spectrum of military occupation specialities. Some 2,500 additional Guard personnel trained at the NTC under KPUP. New programs, oriented specifically on specialities difficult to train in the US, i.e., M-1 tank maintenance training, air traffic control training, and field chaplain training, to name just a few, are continually being added to the KPUP program in pursuit of our goal of offering the maximum number of training opportunities to each National Guard member. More than 5,000 overseas KPUP opportunities are available for FY 87, including large numbers for the annual REFORGER and TEAM SPIRIT exercises.

Training Support

Development continues on the Army National Guard (ARNG) "Interlocking Training Strategy". This strategy was developed to improve training opportunities and effectiveness during Inactive Duty Training (IDT) and Annual Training (AT). The "Interlocking Training Strategy" provides the crosswalk from platoon to battalion level training outlined as follows:

a. Armory/Garrison Training Areas (GTA) employ training devices and simulation to provide training through platoon level.

b. Local Training Areas (LTA) are developed to provide training through company level on modern, state of the art equipment/devices to include company and team combined arms live fire exercises or their subcaliber and/or Multiple Integrated Laser Engagement Systems (MILES) equivalent.

c. Major Training Areas (MTA), normally AT locations, are devoted to the support of battalion, task force maneuver and combined arms live fire training exercises.

To support this strategy a full compliment of training devices/simulations are essential. This becomes critical in light of the unprecedented integration of modern weapons systems and the increased reliance upon ARNG units for wartime missions.

The FY87 budget reflects a $68 million commitment by the Department of Army (DA) to provide the Reserve Component (ARNG and USAR), with technologically advanced training devices/simulations. Procurement of 192 platoon sets of MILES will complete a company/troop set for each ARNG maneuver battalion/squadron. Regional Maintenance Training Site (RMTS) "Device Suite" procurement continues. The Mobile-Conduct of Fire Trainer (M-COFT) program accelerates with 9 units fielded by close of FY87. Congress has provided an additional dedicated appropriation of $50 million for Training Devices to the ARNG in FY87 (same as FY86) which will be used to procure RMTS "Device Suites", Video Disk Gunnery System (VIGS) for Combat Engineer Vehicle (CEV) and M2/M3 Bradley Fighting Vehicles, Precision Gunnery Training System (PGTS) (a TOW/DRAGON weapons system trainer) and acceleration of the Guard Unit Armory Full-Crew Interactive Simulation Trainer (GUARDFIST) initiatives which include an armor device and an artillery trainer dubbed GUARDFIST I and GUARDFIST II, respectively. Congress has also appropriated $5 million for FY87 (same as FY86) for research and development of RC unique training devices/simulations. This funding will be applied to complete development of the GUARDFIST initiatives, an Indoor Infantry Interactive Trainer, and funding for the Training Technology Field Activity (TTFA) at Boise, ID.

Another ongoing major effort to improve ARNG combat readiness involves the modernization, upgrade, and expansion of local training areas for Inactive Duty Training periods. Presently, the ARNG has 274 recognized Local Training Areas, of which 56 are National Guard Bureau approved as Major Training Areas. The ARNG Range Modernization program involves the upgrade and new construction of range facilities to accomplish pre-mobilization training and to meet weapons qualification requirements. Modernized local training areas are designed to support the next level, above garrison level, of the ARNG Interlocking Training Strategy, while maximizing training time and conserving resources.

Regional Training programs continue to be a viable approach to providing standardized and cost effective training in a time constrained environment for ARNG personnel. The Regional Training Center (RTC) at Fort Dix, NJ is under construction and will provide soldiers with a means to train on state-of-the-art training devices, simulations and combat weapons systems. Regional Maintenance Training Sites (RMTS) are being located in areas of high maintenance unit densities and will provide individual maintenance Military Occupational Skill (MOS) transition and sustainment training on current and force modernization equipment. Four RMTS will be under construction in 1987 (Ft Dix, NJ; Cp Shelby, MS; Ft Bragg, NC; and Cp Dodge, IA). Regional Training Sites-Medical (RTS-MED) will provide unit level transition and sustainment training on modernized medical equipment with the additional mission of providing emergency disaster support. The ARNG has proponency for two RTS-MED, Cp Shelby, MS (FY88) and Fort Indiantown Gap, PA (FY89). A Field Medical Training Site (FMTS) located in Panama will provide ARNG medical units and personnel an opportunity to train and treat injuries and tropical illnesses in a field environment. Medical units will deploy to Panama, draw medical equipment from the FMTS, move to a preselected training area, and perform Annual Training. The first iteration to use the site is scheduled for March 1987.

Training ammunition authorization from DA in FY87 is 25 percent less than FY86. Overall, the FY87 authorization is adequate to accomplish Standards in Weapons Training requirements for ARNG units. FY87 shortages of ammunition in 2.75 inch High Explosive (HE) rockets, 105mm and 155mm illumination rounds and 4.2 inch White Phosphorous (WP) rounds will prevent ARNG crews from qualifying.

The ARNG has taken the initiative in development and testing of plastic training ammunition. Plastic ammunition requires a range, one-tenth that of fullcaliber, and can be used at local training areas (the ANG, Marines and ROTC are also interested in using plastic training ammunition). The approximate cost savings of using local training areas versus travel to major training areas is $9,616,000 per year. Plastic .50 caliber linked ammunition is currently being used by the states. Plastic 5.56mm ammunition and the required amplifier bolt will not be available until FY89.

The ARNG's commitment to use subcaliber devices is exemplified in the use of the 60mm subcaliber tube for 4.2 inch mortars which saved the Army approximately $2.9 million in FY86. The ARNG is working with Army Material Command to safety certify this subcaliber device for use in the 81 mm mortar.

The ARNG developed and obtained safety certification on the Fordster Smoke Pot in FY86. The Fordster Smoke Pot uses a $2.04 illumination booby trap to ignite a smoke cannister which is obsolete and presently available in the demilitarized account. The ARNG use of the Fordster versus ground and floating smoke pots saves the Army approximately $1.9M annually.

FY86 saw the beginning of M60A3 Displaced Equipment Training (DET) at Gowen Field, ID for the RC Armor Force. In keeping pace with the ARNG modernization program a two week Annual Training transition program for armor crewmen and turret maintenance personnel must take place for all armor/cavalry units. A battalion/squadron (usually 4 companies) rotates through a site in a total of 5 weeks. In FY86, the M60A3 DET (Gowen Field) trained 4 battalion equivalents. In FY87 the second training site, Camp Shelby, MS, began training. Each site will train seven armor battalion/squadron equivalents each FY thru FY90.

The expansion of the Readiness Management Assembly (RMA) program since 1985 and continued support will ensure a substantial increase in the professionalism and quality of training being conducted during Unit Training Assemblies. Increased funding in this program has and will allow trainers to participate in individual paid assemblies that allow them to plan, coordinate, assist, prepare and supervise the preparation of and conduct of training at unit and staff levels . Meaningful and challenging training is being prepared, executed and supervised. This program also has allowed Army Guardsmen to participate in individual paid assemblies to handle the management and support requirements of a unit. This program permits key leadership and administrative personnel to participate in mission oriented training during Unit Training Assemblies instead of being burdened with management, administrative and support requirements.

The ARNG also sponsors the National Guard Marathon held in conjunction with the Lincoln, Nebraska Marathon. Approximately 500 runners from 54 states and territories participate. Top runners are selected to represent the National Guard and to participate in team competition in the Marine Corps, Infantry and Navy Marathons.

The ARNG serves as the coordinator for the conduct of National Guard Marksmanship competition. Guardsmen participate annually in Army Area Reserve Component Small Arms Championships (National Match Rifle and Pistol, Combat Rifle and Pistol, and M60 Machinegun), US Army Small Arms Championships, Interservice Pistol Championships, National Pistol and Rifle Championships and National Guard Rifle and Pistol Championships.

The sport of Biathlon combines the skills of cross-country skiing and shooting. It is a military oriented activity conceived by the Nordic Nations and is now part of international sport competition, including the Olympics. The ARNG serves as the coordinator for the Chief, National Guard Bureau for the conduct of the NGB Biathlon Team and Individual Championships. Guardsmen from more than 32 states participate. Continued support of this program has allowed Guardsmen to compete on the All-Guard Team as part of the U.S. Team participating in the World Cup Series (World Championship), the Italian Alpine Ski competition, and with other U.S. Army teams participating in competition in NATO countries.

National Guardsmen also have been selected to participate in the Council International Du Sport Militaire (CISM) Ski Championships as part of the U.S. Military Team.

READYING/MOBILIZING THE GUARD

The Army National Guard (ARNG) is at its highest level of readiness. In most cases this readiness closely parallels that of the active component especially for round-out and combat support/combat service support units. During FY 86, the ARNG met its readiness goals by increasing the number of units reporting an overall combat ready status by seven percent. Also, the number of units reporting combat ready for equipment-on-hand increased by eleven percent. The effort was successful because of intensive readiness management efforts supported by the dedicated procurement initiatives.

Preliminary data from the FY 86 MICAF report, which measures increased capability of our forces based upon the fielding of new equipment, showed a positive increase of nine percent during FY 86 for the reserve component major combat units. This increase totals 33% since 1980 indicating that our modernization efforts are paying high dividends. This figure does not include ARNG roundout units and will be significantly higher when final data is available.

To emphasize the importance of readiness management, the ARNG Directorate developed and implemented a Readiness Action Plan (REAP). REAP consolidates policy, readiness initiatives and management tools to overcome unreadiness. The goal of the plan is to improve overall ARNG readiness by intensively managing available resources and by raising the visibility of readiness management efforts. This is done through visits by selected ARNG Directorate staff officers to state level readiness management committees and invitations to major unit commanders to present their readiness status to the staff during quarterly Force Readiness Committee meetings at the National Guard Bureau (NGB). To ensure unit status reporting accuracy and to assist in reporting procedures, the REAP also includes increased feedback to reporting units from the NGB.

The positive readiness trend experienced during FY 86 is expected to continue as NGB and state readiness committees put forth a unified effort to identify readiness inhibitors, report all inhibitors on the unit status report and fully implement all ARNG readiness management policies.

The ability of the ARNG to respond to the demands of readiness improvement to meet warplan tasks will be restrained, however, if specific equipment that is driving ARNG units to an unready posture is not resourced and filled. If equipment resourcing is continued at the current level, readiness improvement will level off and not show marked gains until well into the next decade. All initiatives to ensure that equipment is in fact where it should be according to readiness requirements have been completed by the states. Dedicated procurement initiatives to buy common items of equipment such as trucks, radios and test sets to fill ARNG shortages must continue for us to meet our goal of a combat ready force.

The mobilization exercise program for FY86 (See Chart 18) was the most ambitious undertaken in the history of the program. Over 700 mobilization exercises were conducted in support of state mobilization programs and major Overseas Deployment Training (ODT). Examples of exercises supported included Display Determination with units from North Carolina deployed to Italy, Reforger 86, with units from Wisconsin deployed to Europe, and Team Spirit exercises in Korea with units from California and Alabama participating. These exercises have shown that ARNG units can successfully perform required mobilization activities within a timeframe which has potential for reducing theater arrival dates by five to seven days. Continued participation in these exercises will reinforce and enhance ARNG unit capability.

Mobilization preparedness is the major objective of the ARNG. Training and evaluation of the level of mobilization preparedness are essential for improving the unit and State Area Command capability to execute mobilization and deployment responsibilities. To date, the ARNG exercise program has emphasized premobilization administrative processing and limited operational functions. This has been successful in raising the level of mobilization awareness and readiness in ARNG units. The increasing reliance on RC forces in defense plans necessitates that the mobilization and deployment capability of high priority units be expanded and periodically assessed through realistic exercises. The ARNG will implement The Emergency Mobilization and Deployment Readiness Exercise Program (EMDREX) in FY87. The EMDREX is designed to evaluate the ability of early deploying high priority units to rapidly perform alert and mobilization functions at home stations and move to mobilization stations or ports of embarkation and prepare for deployment.

Chart 18 MOBILIZATION EXERCISES

	#	$
FY 82	135	7.015M
FY 83	300	9.030M
FY 84	500	9.4M
FY 85	600	11.0M
FY 86	700	13.1M
PROJECTED:		
FY 87	550	10.3M

Sustaining the Army National Guard's ability to respond to mobilization situations, both real world and exercise, is being constrained by funding. The effect of budget reductions in special training adversely impacts on the mobilization and deployment readiness exercise program. The FY88-FY89 budget, if reduced at the FY86 and FY87 rates will force the ARNG to return to approximately FY84 execution levels, with a corresponding effect of reducing the level of mobilization readiness for units in the outyears.

The mobilization exercise program is a highly visible and successful program. All reasonable efforts must be made to improve it.

SAFETY

The Army National Guard (ARNG) aviation accident rate decreased from 1.53 accidents per 100,000 flying hours in FY 85 to 1.19 in FY 86. Human error on the part of air crews and maintenance personnel continue to be the major factor in these accidents. Individual accountability at all levels, intensive management of aviation safety school quotas, expansion of training programs, and a quarterly aircraft accident review and trend analysis videotape are major elements in the countermeasure program developed to further the aviation accident prevention program.

Increased ARNG exposure in FY 86 over FY 85 resulted in a 7% increase in Army motor vehicle accidents. However, the Army motor vehicle accident rate decreased 1% from FY 85 to 1.76 accidents per million miles of exposure. A 33 percent increase occurred in Army combat vehicle accidents. Non-fatal injuries sustained were reduced 1 percent from FY 85; however, fatal injuries increased 33 percent. ARNG safety/accident prevention efforts were targeted toward reducing motor vehicle accidents and personal injuries. The FY 86 program entitled Operation SafeGuard 86 "The Safe Way...The Guard Way" was targeted at reducing human and supervisory errors. The program reviewed casual factors involved in a Class A Army motor vehicle accident experienced in FY 85 and recaps previous years' countermeasure programs. Analysis indicates an 1 percent reduction in FY 86 accident frequency from that experienced in FY 85.

The ARNG successfully completed the first year of "SafeArmy 1990 Plan. The 5 year plan highlights key goals and selected initiatives forming an essential foundation for Army accident prevention and resource conservation. The ARNG action plan "SafeGuard 1990" supports SafeArmy 1990 plan. Each major plan element states a specific ARNG goal and key actions with responsible agents leading to achievement of that goal. ARNG commanders are vital to the success of planned objectives. The effectiveness of this plan is evidenced by significant improvements in safety program management and accident prevention in several key areas throughout the ARNG in FY 86.

CONCLUSION

Today, the Army National Guard, the citizen-soldier, is better organized, better trained, and better equipped than at any time in history. He must stay that way. He has met the challenge of being an integral part of the Total Force. His dedication is equal to that of his forefathers and his spirits are high. This country benfits from his contribution. Whether it be the latest tank, a modernized aircraft, an improved training site, full-time support, or a new armory, we owe him the very best we can provide. Our willingness to sacrifice to give him that best must be equal to task we have laid upon him - the defense of this country and freedom around the world.

ARMY NATIONAL GUARD BUDGET

NATIONAL GUARD PERSONNEL, ARMY

The FY 88/89 National Guard Personnel, Army (NGPA) budget request of $3,218 and $3,269 provide pay and related expenses for Army National Guard personnel. Chart 19 below shows NGPA funding by budget activity. The FY 88 request supports a paid end strength of 458,800 and the FY 89 request supports 464,900. A backlog of training requirements created by Congressional cuts in FY 87 in School Training ($27M) and Special Training ($32) will be only partially offset by modest increases requested in FY 88 and FY89 for those two accounts. These accounts provide overseas training, mobilization exercise training, retraining required to meet force structure changes, and professional development training so critical to an ever more rapidly deploying Guard.

Chart 19 NGPA ($ Millions)

	FY 86	FY 87	FY 88	FY 89
PAY GROUP A/P	1,641	1,446	1,505	1,522
PAY GROUP F	231	222	235	249
SCHOOL TRAINING	162	163	175	188
SPECIAL TRAINING	140	142	156	169
ADMIN/SUPPORT	922	1,017	1,097	1,141
EDUCATIONAL BENEFITS	66	85	50	0
TOTAL	3,162	3,075	3,218	3,269

OPERATION AND MAINTENANCE, ARMY NATIONAL GUARD

The Operation and Maintenance, Army National Guard (OMARNG) provides operation, maintenance, and training support. Chart 20 provides a breakdown of the dollars requested. A key element in the OMARNG budget is an increase of 491 Military Tecnicians. The personnel comprise a part of the Full-time Unit Support program which provides administration, trainiing, and logistical and maintenance support to the Guard. These individuals are critical to the Guard maintaining a readiness posture required by today's Total Force concept.

Chart 20 OMNG ($ Millions)

	FY 86	FY 87	FY 88	FY 89
TRAINING OPERATIONS	165	182	191	202
LOGISTICAL SUPPORT	1,031	1,123	1,172	1,269
BASE OPERATIONS	163	185	206	257
DEPOT MAINTENANCE	52	67	73	82
MANAGEMENT SUPPORT	102	133	149	170
RECRUITING SUPPORT	39	48	46	48
MEDICAL SUPPORT	14	21	24	26
PCIP	-	-	1	1
TOTAL	1,566	1,759	1,862	2,055

MILITARY CONSTRUCTION, ARMY NATIONAL GUARD

The Military Construction, Army National Guard (MCNG) request for FY 88 and FY 89 include funds for the construction of new armories, the alteration and/or expansion of existing armories, the construction of training facilities, and the construction of maintenance facilities as shown below in Chart 21.

Chart 21

MCNG
($ IN MILLIONS)

RESOURCES	FY 86	FY 87	FY 88	FY 89
MAJOR CONSTRUCTION	70	117	151	139
MINOR	15	5	5	6
PLAN/DESIGN	12	19	14	16
TOTAL	97	141	170	161
NO. OF PROJECTS				
ARMORY	32	45	23	40
AVIATION	4	1	6	7
TRAINING	9	17	20	26
MAINT/LOG	24	10	15	12
OTHERS	2	1	6	2
TOTAL	71	74	70	87

BRIGADIER GENERAL DONALD BURDICK
DIRECTOR, ARMY NATIONAL GUARD

General Burdick began his military career in 1956. After a few months in the United States Army Reserve, he joined the New Jersey Army National Guard serving as a platoon leader of the 252d Tank Battalion. General Burdick's former civilian occupations as a Professor and a Research Chemist in the fields of Agronomy and Animal Science provided him with the unique opportunity to serve in Army National Guard units in different states. After leaving New Jersey, he served in various positions including Platoon Leader, Troop Commander, and Squadron S-2 in the Pennsylvania ARNG Cavalry units during the period from October 1958 to November 1965 . In 1965 General Burdick moved to Kentucky where he transferred to the Artillery Branch gaining experience in Target Analysis and as the Assistant S-2 of the XXIII Corps Artillery.

In 1969 General Burdick transferred to a position at the University of Georgia. In October of that year he became the Assistant S-3 of the 118th Field Artillery Group of the Georgia Army National Guard. He was promoted to Major and became the S-3 in December 1970. General Burdick's responsibilities increased as he became first the Executive Officer and, then, in January 1976, the Commander of the 1st Battalion of the 214th Field Artillery. Upon assuming command, he received his promotion to Lieutenant Colonel. He served in the battalion commander for three years until he was promoted to Colonel and became the Chief, Plans, Operations and Military Support for the Headquarters of the Georgia National Guard.

After attending the U.S.Army War College from July 1980 to July 1981, General Burdick was appointed the Deputy Chief of Staff for the Georgia Army National Guard and subsequently the Commander of the 118th Field Artillery Brigade. In November 1983, General Burdick became the Assistant Adjutant General for Army in the Headquarters State Area Command and received his promotion to the rank of Brigadier General in the Adjutant General Corps in February 1984. In March 1987, General Burdick was recognized as a Brigadier General of the Line and became the Director of the Army National Guard in the National Guard Bureau.

General Burdick's civilian education includes a Bachelor of Science degree in Animal Science from Rutgers University, a Master of Science in Animal Nutrition also from Rutgers University, and a Doctor of Philosophy in Biochemistry from Pennsylvania State University. His military education includes Officer Basic and Advanced Schools in both Armor and Artillery. General Burdick has also attended schools in Nuclear Weapons Employment and Nuclear and Chemical Target Analysis. As stated earlier, he is also a graduate of the Army War College.

General Burdick has been awarded the Legion of Merit, the Meritorious Service Medal, the Armed Forces Reserve Medal with Hourglass Device, the Army Reserve Components Achievement Medal with 2d Oak Leaf Cluster, and other decorations.

Chairman STENNIS. You made a good statement, General.

Gentlemen, you doubtless have some questions to ask, and you have other matters I know you want to go to. Do you want to proceed with questions now?

Senator SASSER. At the discretion of the Chair, I have some questions, Mr. Chairman. I can go to them now, or we can wait, whichever you would prefer.

Chairman STENNIS. I think we should have some questions now. Gentlemen, let us hear the Member here. He is brief by nature and he has meaningful questions. I think he can make a great contribution here. Senator Sasser.

EQUIPMENT PROCUREMENT

Senator SASSER. Well, thank you very much, Mr. Chairman. I want to commend you for holding these hearings. As you know, I am a strong believer in the total force concept and the Guard and the Reserve components play a very vital role, in my view, in the defense of our country and the whole free world.

In recent years, some very significant improvements have been made in procurement of equipment for the Guard and Reserve, thanks in no small part to the efforts of the Chairman of our committee, Senator Stennis.

ADDITIONAL PREPARED STATEMENT

I have an additional statement, Mr. Chairman, which I would like to have submitted in its entirety for the record.

Chairman STENNIS. Without objection that statement will be admitted into the record at this point.

[The statement follows:]

PREPARED STATEMENT OF HON. JIM SASSER

U.S. SENATOR FROM TENNESSEE

As the chairman of the Military Construction Subcommittee, I share your commitment, Mr. Chairman, to the modernization and expansion of the Nation's Guard and Reserve. I want to thank the witnesses here this morning for including in their testimony information on the military construction request currently pending. The Congress has increased Guard and Reserve military construction over 400 percent since 1980 and we are inclined to continue that trend.

In fact, Mr. Chairman, it is my view that the Guard and Reserve are going to become more important to the force structure of this Nation. I think we all agree that a no growth defense budget is probably the best we can hope to fund in the coming fiscal year, if we are to stick to the Gramm-Rudman targets. And as we look to the future, we are going to have to start making some hard decisions with regard to our military force structure.

The truth is, we may have to begin to reduce the active forces. If that begins to happen, it is my view that we should beef-up the Guard and Reserve to replace and further supplement the active forces. So, I think that, increasingly, as the budget deficit forces cuts and reductions in defense, we will be looking for the Guard and Reserve to assume much of the burden.

INCREASED MISSIONS FOR AIR GUARD

Senator SASSER. I have a question for General Conaway. I think General Conaway is aware of my interest in seeing that the Air Guard assumes more missions that are currently assigned to the active Air Force.

In my State of Tennessee, for instance, we have two tactical airlift groups, which are ready, willing and capable of fulfilling a strategic airlift role with either C141s or C5s. The active Air Force has not yet seen fit to give up more of its aircraft.

But frankly, it is my view that, as the leadership of the Air Force looks at the budget constraints that I fear are coming down the pike for fiscal year 1988 and for future years, the decision is going to have to be made to turn over more of the strategic airlift missions to the Air Guard.

Now, the Air Guard can perform this mission, I think, with the same degree of professionalism as the active force does. And it will do it with one very significant difference, and that is that the Air Guard will accomplish the mission more cheaply.

My question to you is an easy one, General Conaway. Do you agree that the Guard can perform these new airlift missions and perform these missions at a savings to the taxpayer?

Major General CONAWAY. Yes, sir. We can perform the missions and we are already programmed into some of the strategic airlift that you mentioned at Jackson, MS and Stewart, NY. It can be done at a savings, depending on how we are manned and our crew ratio.

Senator SASSER. Well, General Conaway, I agree with you that the Guard and the Reserve have a significant untapped potential for assuming more missions that are currently assigned to the active force. And I look forward with eager anticipation to working with you in the future to accomplish this goal.

Mr. SHAW. Senator Sasser, may I answer that question?

Senator SASSER. I would be delighted to hear from you, Mr. Secretary.

STRATEGIC AIRLIFT

Mr. SHAW. Our office, Jim Webb, myself, and our staff, support that view. In fact, we have been working towards that end. We think that it is not just an issue of the cost of putting more strategic airlift into the Guard and Reserve components.

It is an ideal mission for them because basically strategic airlift is something that will be maintained at a fairly static level of peacetime operations, in terms of moving cargo around worldwide. Its real capability is its surge capability. With the reserve components performing or using those aircraft to maintain peacetime operations, we can train many crews assigned to one aircraft. We can extend the lifetime of the frame of that aircraft.

There are a number of very, very good reasons that we should be looking at putting more of the strategic airlift into the Guard and Reserve components. I wanted to respond because I wanted to say that I am committed to doing that within the Department, and I hope I am successful in selling that argument later this year.

Senator SASSER. I hope you are, too, Mr. Secretary. And if I can give you any assistance in selling it, please call on me. Major General Conaway?

Major General CONAWAY. Yes, I agree with Mr. Shaw as well. Sir, there are a couple of issues that are important here. One, the Air Force does have confidence in the Air National Guard as evidenced by what they have programmed for us.

We have had some problems recently with a couple of governors who have been against us doing some training in certain areas. This can become a problem in the scheduling of some of our national assets to the National Guard, and we obviously need to make sure that we are available to do this training.

Now you know the Montgomery amendment that became law last year has helped in this issue as far as making National Guard units available where the Department of Defense and the Army and the Air Force need us to support them, whether it is with C–130s or C–141s or KC–135s.

In our case the aircraft are national assets, so we appreciate any support you all can give to make sure that this issue is resolved. This is a total force concern—that we can continue training—and I think DOD would have a good feeling about resolving it. That tends to be the only potential cloud on the horizon. We must make sure that the National Guard is available for peacetime training.

There is no doubt about an involuntary call-up. The laws on the books take care of that. But we must be available to help as well, since 30 percent of the Air Force combat capability is in the Air National Guard. They need us every day, whether it is Southwest Asia, Europe, Korea, Central America, or wherever to help our people.

Senator SASSER. Well, thank you, General Conaway. Mr. Chairman, I have one final observation that I would like to direct to the Secretary.

SHORTAGE OF RESERVE MEDICAL PERSONNEL

Secretary Shaw, in your testimony you deal at some length with the shortage of Reserve medical personnel, and I agree that the wartime medical needs should be afforded a very high priority. But I would like to make another suggestion, if I could.

It comes as no surprise to you, I am sure, that I have rather strong feelings that our allies are not providing their fair share of the common defense budget of the free world. We see now the Secretary of State and the administration moving in the direction of trying to fashion some sort of limited nuclear arms agreement with the Soviet Union.

CONVENTIONAL FORCES IN NATO

At the same time we hear apprehensions being raised by our allies in Western Europe, and others, that we cannot afford to give up any portion of our nuclear weaponry because of the asymmetry that they say exists in the field of conventional forces.

Now those observations sound rather hollow to me. Here we are sitting with allies in Western Europe that have a population exceeding that of the Soviet Union and with a gross national product that considerably exceeds that of the Soviet Union. We in the United States have a GNP that is twice that of the Soviet Union.

This deficiency in conventional weaponry, if it is a danger to the Western alliance, should not exist. And it does exist, in my view, simply because our allies are not living up to what I perceive to be their obligation to provide for the common defense of Western Europe and the free world.

Any way you slice it, whether it is per capita expenditure or percentage of gross national product, our Western European allies and NATO come nowhere near matching the commitment of the United States, nor do the majority of them meet the obligations that they freely undertook some years ago under another administration to increase defense spending 3 percent per year in real dollars corrected for inflation.

There would be fewer internal political problems with the development of Reserve medical units to meet the wartime needs of the free world, I think, if we were getting more cooperation from our NATO allies. I just wondered if you have any comments to make on my observations, Mr. Secretary?

Mr. SHAW. Well, not to the much broader and sophisticated observations you are making, because that is way beyond my realm of responsibilities and the things that I look at from day to day. With respect to the Reserve components, and in medical readiness in particular, I can say two things.

I think this country is finding it more and more difficult to fund the conventional forces that we need to meet our predicted threat. That is one reason why we are relying on the Guard and Reserve more and more today.

On the medical readiness side, I see among allied nations to varying degrees, a commitment to care for their own estimated wartime casualties. I can tell you that their estimations are normally higher than ours. I think they are more realistic than ours. That concerns me. We are working on that within the Department right now.

We have been working with allied nations to increase host nation support in the area of combat medical care. If that comes to pass, as we have planned, it will be helpful and will diminish the burden on our American taxpayers.

Right now I think we have to come to grips, the Congress as well as the Department of Defense, with our combat medical readiness needs. We have serious problems in the personnel area and we have serious problems in the equipment area. These are war stoppers.

Senator SASSER. I think that is true. Mr. Chairman, thank you. Thank you, gentlemen.

Chairman STENNIS. Thank you, Senator. I think we will call on Senator Proxmire now. Senator Proxmire, we do not have a rigid limitation on time, but we agreed on 10 to 12 minutes first time around.

Senator PROXMIRE. Thank you, Mr. Chairman. First I want to congratulate the Chairman on his strong support of the Guard and Reserve. He has been a champion of that.

Of course there is nobody who is more important as far as defense spending is concerned and the resources that have been put into defense than Senator Stennis. He has done a marvelous job over the years.

I like the National Guard and Reserve, not only because I am a scrooge and because they cost less, in many respects, but because they do a marvelous job, a very high quality job. In all the competitions, the flyoffs and so forth, we have objective evidence, not just a matter of rhetoric it is a matter of fact, that they have done an excellent job over the years and are probably as good now as they have ever been.

440TH TACTICAL AIRLIFT IN MILWAUKEE

General Scheer, the 440th tactical airlift wing in Milwaukee is flying the oldest C-130As in the U.S. inventory. An aircraft phased out of every other major air force in the world, due to old age and the high cost of maintenance. What are the prospects that 440th will receive new C-130 aircraft in the near future?

Major General SCHEER. On the books now, Mr. Proxmire, there are no immediate solutions to that problem. The Air Force master plan for airlift depends heavily on the C-17. When that comes in that will free up C-141, C-5 and other aircraft for the reserve forces. And it is true, those C-130As at Milwaukee are not only old, they are pretty much prohibited from performing the full range of tactical airlift missions.

Due in great measure to the support of this committee last year we were able to outfit O'Hare with some brand new C-130Hs, and we would ask for the continuing support of committees such as this and the Congress in general to continue modernization of our C-130 fleet.

Senator PROXMIRE. Thank you. General Burdick, are you any relation to Senator Burdick?

Brigadier General BURDICK. I think we talked about that a few weeks ago.

Senator PROXMIRE. Oh, you did. Well, I will not prolong that but he is a fine Senator and a Member of the full Committee and a friend of all of ours.

AH64 HELICOPTERS IN WISCONSIN

Why should a battalion of AH64 helicopters not be located in Wisconsin with the Army National Guard there to take advantage of the vast amount of experience in the Guard, and to take advantage of the European scenario battlefield conditions in Wisconsin?

Brigadier General BURDICK. Sir, why should it not be located there?

Senator PROXMIRE. That is right.

Brigadier General BURDICK. We continually look at stationing units throughout the United States and certainly we will look at Madison and see if we can consider that, along with all the other locations.

Senator PROXMIRE. I would appreciate that because we tend, of course, for understandable reasons, I think it is a little more economical to have our training and so forth in the southern part of our country. That is fine. But the conditions in the northern part of our country are probably somewhat more similar to what we would find in Europe.

MEDICAL TRAINING COMPLEX AT FT. M'COY

General Temple, I am told that the upper Midwest is in need of a regional medical training complex, and Fort McCoy, WI, is ideally situated for such an activity for the Army Guard and Air Force Reserve units. My question is if you have explored that possibility?

Lieutenant General TEMPLE. That is certainly a possibility. I would suggest that between the Army Reserve and the Army National Guard it is worth looking at, if there is nothing up there, because as you know, Fort McCoy is essentially a Reserve facility. Although the Guard does train there from time, the National Guard has a number of medical facilities coming on, and we are certainly pleased to look at McCoy as a possibility.

STATUS OF WISCONSIN ARMY GUARD ATTACK HELICOPTER BATTALION

Senator PROXMIRE. General Burdick, the Wisconsin Army Guard attack helicopter battalion personnel have an average of 2,700 hours flight experience, with 80 percent of them with 1,000 hours of combat time.

Maintenance personnel average 12 years of turbine experience, and instead of the 21 helicopters they need to be fully combat ready, they only have 15 AH1S TOWs, two AH1Gs, and eight UH1 helicopters. With outdated weapons systems this unit needs to get combat ready, but it cannot with the outdated equipment it has, even given its wealth of experience.

Now what can be done to bring this unit to a C1 state and when will this be accomplished? I might say that I confused the numbers here. There were 15 altogether, five of which are AH1S TOWs, two AH1Gs, and eight UH1 helicopters.

Brigadier General BURDICK. Sir, we recognize the need, you know, for additional helicopters throughout the force, and we continually work with the Army staff and Department of Defense in trying to identify adequate funding in this area.

I really cannot give you a definite answer right now on when that can be fixed up there.

Senator PROXMIRE. The reason I am asking these questions is I just want to make sure that you do not forget us. We are a State that is very proud of our contributions, and you have a marvelous record and we want to maintain that.

Brigadier General BURDICK. You certainly have, sir.

TRAINING AIDS AND SIMULATORS FOR ANG ARMORIES

Senator PROXMIRE. General Temple, now I would like to ask you a couple more general questions. Last year the Congress approved $5 million in R&D and $50 million for training aids and simulators for Army National Guard armories. Do you recommend that program be funded again this year and at about the same amount?

Lieutenant General TEMPLE. Yes, sir. I certainly do. As a matter of fact, this has been a blue-ribbon year for us on simulation devices, particularly in the Multiple Integrated Laser Equipment System or MILES area. And as your brigade up in Wisconsin would attest to, the utilization of MILES is probably the best tactical training device that the Army has ever developed.

And we are trying desperately to get those into those locations, and McCoy is one location where it is healthy to have them, and to ensure that they are brought up to the tactical level that they would like to be.

Senator PROXMIRE. General Conaway, first I want to congratulate you on two things. One is you are a great friend of Wisconsin, and, two, your daughter Ellen is a top staffer for my colleague, Senator Kasten. He is ~~also~~ a Member of this committee and has done a very fine job. She has worked closely with our staff on a number of things.

PROCUREMENT OF UNFUNDED COMBAT ESSENTIAL EQUIPMENT

Every year since 1982, General, the Congress has provided funds to the Air National Guard bureau to procure unfunded combat essential equipment. With a shortfall of $120 million for communication, and combat aircraft and support equipment, would you support an addition of $50 million to the equipment account in fiscal year 1988 and fiscal year 1989?

Major General CONAWAY. I certainly would, sir. That has been a great benefit to us to increase the combat readiness of our communications units, as well as to increase the training aids for our flying units.

UPGRADING OF AIRPORT FOR 128TH AIR REFUELING GROUP

Senator PROXMIRE. I want to follow up on that, General Conaway, with another question for you. The 128th Air Refueling Group of the Strategic Air Command in Milwaukee will be given two additional KC–135E aircraft in late 1987.

Sixteen aircraft will be assigned eventually since it is cheaper to have one base for 16 aircraft than two bases with eight. In order to handle 16 aircraft the 128th will have to expand.

One imaginative general in Wisconsin pulled off quite a coup by getting the city of Milwaukee to give him 46.3 acres of land, right in the city of Milwaukee downtown, it is worth tens of millions of dollars. He got it at the cost of one dollar and he wrote a check for one dollar on the spot.

Now the 128th needs to develop that land, particularly the runways, to connect with existing airport facilities. Do you think that this upgrading makes sense in view of the increase in air traffic that is stationed there?

Major General CONAWAY. Sir, I would like to see the upgrading take place. We currently do not have it in the Air Force program because the only thing in the program at the current time is to increase the unit from eight aircraft to 10 aircraft, and there currently is nothing beyond 10 KC–135s.

Obviously as we continue to look at shifting the force structure, they would be a candidate to go higher. But this fall they go to 10 aircraft with two lines of alert. Ultimately if they go higher they would need to develop that land.

Senator PROXMIRE. Our people out there say they will need $5 million if there are going to be more aircraft stationed out there.

Major General CONAWAY. For more additional aircraft stationed there, you're absolutely right. Thus far, we have not been successful because the program right now stops at ten. Of course, a year ago, it was only going to eight, and then last summer, it increased.

So I cannot tell you when it would change again. But that was a superb feat that General Matera and the staff did, I'm sure with your help, to get that additional land. It puts them in a position that they can expand and robust above the ten, if the Air Force needs them. They were basically locked in prior to getting that land.

Senator PROXMIRE. We were very proud of General Matera out there. He was the man who wrote the check for a dollar. He's a great man.

UPGRADING OF INDOOR FIRING RANGES

One final question, General Ward, many indoor Army firing ranges need to be upgraded to meet OSHA standards. Given the importance of indoor firing ranges, does it not make sense to expeditiously make these improvements now?

Major General WARD. Mr. Proxmire, that subject is being worked very strongly. We're taking a look at an option which I know, if it works, you would find highly attractive.

We're looking at an air rifle alternative for indoor firing at a cost of roughly a million dollars for the entire country for a substantial cost savings versus redoing these ranges to deal with the lead content issue. In all of our Army Reserve centers, we are currently talking of an average of about 70 times the safe lead level in some of our preliminary numbers.

That air gun substitution project is moving along rather well. We expect to have a tentative solution on that within the next couple of months and then begin testing on it.

CAMP M'COY MEDICAL TRAINING CENTER

I would like to go back to another question. I might be able to add something on the Camp McCoy issue. In the program for fiscal 1992 there is a regional medical training center plugged in as the Fourth Army training center at Camp McCoy.

There are five of them that are OCAR funded, and there are three National Guard funded. The OCAR sites are Devens, one at California Parks, one at Ft. Gordon, GA; Ft. Chafee, AR, Ft. McCoy——

Senator PROXMIRE. That was what fiscal year again?

Major General WARD. Fiscal year 1992. I might also point out that the National Guard has one programmed in 1988 in Camp Shelby, MS.

Senator PROXMIRE. Anytime we can go along with Mississippi we're in very good company.

[Laughter.]

Senator PROXMIRE. Thank you very much, Chairman.

Chairman STENNIS. You were my teacher.

Senator PROXMIRE. I hope you will consider that as a combination.

Major General WARD. Almost perfect.

Chairman STENNIS. All right, Senator Cochran.

Senator COCHRAN. Thank you, Mr. Chairman.

ALLOCATIONS TO GUARD AND RESERVE FORCES

We keep hearing from the Service Secretaries that more and more of the burden for defense is being shouldered by Reserve and National Guard forces.

But looking at the budget request, I wonder whether or not that gets reflected in the allocation resources.

I suppose this question should be directed to Secretary Shaw. Do our Reserve and Guard components have as much opportunity as they should in expressing their opinion, and participating in the development of the budget request that is submitted for the Department of Defense each year?

Mr. SHAW. The short answer to that complex question is yes, in my view. Each of the Reserve component chiefs that sit before you today have an opportunity to express their needs within their services.

We represent the Reserve components on the Defense Resources Board, when the services present their programs to the Secretary of Defense.

And of course we have an opportunity, as we do today, and on many other occasions, to sit before the Congress and represent our needs.

So I would say that, by and large, we have ample opportunity to make our requests and to fight for what we believe.

We have testimony today that the Reserve components are in better shape than they ever have been. They're combat ready. That's an undeniable fact. We've been making a lot of progress.

But I don't think that that should paper over the fact that we've got a long way to go. Our wartime shortfalls measured against our wartime requirements for fiscal year 1987 are approximately $19 billion.

If everything goes the way we'd like it to go, which I don't predict, but if everything goes according to our plan, by 1990 we'll be about $10.6 billion short of our fiscal year 1990 wartime requirements.

So we are making substantial progress.

AVAILABILITY OF REQUIRED EQUIPMENT

Senator COCHRAN. I noticed in your statement that you mentioned that only 72 percent of required equipment is available in the field, measured against the wartime requirements.

Mr. SHAW. Seventy-two percent of the required equipment at the beginning of fiscal year 1988, is what we'll be able to field.

Senator COCHRAN. Translated into dollars, that's about $19 billion, is that what you're saying?

Mr. SHAW. No, sir. What I'm saying is the difference between the 72 percent and the 100 percent would be a shortfall of about $17.5 billion in fiscal year 1988.

Senator COCHRAN. Has that baseline changed?

Mr. SHAW. It always changes. It's a moving target. We're always on an escalator, because every year, we have to go back and reestimate——

Senator COCHRAN. Let me finish asking my question. If you were to compare, for instance, that shortfall to the shortfall 5 years ago, what would that comparison be?

Mr. SHAW. I would be guessing if I answered now, but I'd be prepared to go back and look at that and provide that for the record.

Senator COCHRAN. Are we better off now as compared with the requirements, or worse off?

Mr. SHAW. Oh, yes, sir.

Senator COCHRAN. We're better off now?

Mr. SHAW. No question about that.

Senator COCHRAN. Well, that's encouraging to me. Because I think that we're going to have to continue to examine how we allocate these resources in the light of the constraints on the budget.

We're seeing brought to the floor today budget resolutions which call for very substantial reductions, real reductions, in expenditures for the Department of Defense.

We've been adding money every year for Reserve and Guard forces at a time when the Defense Department budget has been reduced in effect.

I'm not suggesting that that's wrong, but I'm suggesting that everybody has got to look very carefully at how we're using these dollars, and trying to determine what the priorities ought to be.

I continue to think, as Senator Proxmire suggested, that we do get a lot for the dollar invested in the Reserve and National Guard components. I'm convinced of that. It's a very cost-effective investment of national defense dollars.

PROCUREMENT REQUESTS

In looking across the board at the procurement requests for each of the services, we happened to notice that the Navy Reserve procurement request in your Form P1-R budget documentation, is substantially smaller than the other services' requests.

Here are the numbers that we have: Army and National Guard add up to $1.2 billion; the Navy is $148 million; the Air Force and the Air National Guard are $800 million; Marine Corps is $42 million.

There doesn't seem to be reflected in that budget documentation for the Navy the fact that there are minesweepers and there are P3C aircraft being transferred to the Navy Reserve.

Admiral Kempf, what is that discrepancy? Is that because of some structural difference between the Navy and the other services? Or why is that understated by such a large amount?

Vice Admiral KEMPF. Well, sir, you're exactly correct. It is somewhat misleading, because we get so much equipment that is still very serviceable.

Take our frigates, for instance. We get frigates that are less than 4 years old, and in a ship's life, that is very young. But that has not been racked up as new procurement for the Naval Reserve.

Also, the MCMs, the new minesweeper, because for the first year of each of their lives, to get all the bugs out and go through what we call shake-down training, they go to the active force.

One year later, they flow to the Reserve force. So it's just a different way of accounting.

And when there is dedicated procurement, such as PC-3s last year, that comes to the Naval Reserve direct from the factory, then it is reflected in the P1R.

We're really getting quite a good share. It's just not all reflected, and we probably need to do something about that.

Senator COCHRAN. Secretary Shaw?

Mr. SHAW. One thing that might be indicative of that, is that when you look at the fiscal year 1988-89 procurement request, you should remember that the figures I gave you for fiscal year 1987, for example, $557 million that Congress added on to our fiscal year 1987 request of $2.8 billion. Also, procurement only represents a portion of the equipment flowing to the Reserve components. In fiscal year 1986, for example, we had $7.6 billion worth of equipment distributed throughout the Reserve components from all sources.

Our new procurement request for fiscal year 1988 is $2.2 billion. We are forecasting distribution of $11 billion worth of equipment across the board. In fiscal year 1989 our request is $2.5 billion in new procurement, and we are forecasting distribution of $7.3 billion worth of good equipment.

And in most instances, we are not talking about simply replacing obsolete equipment. We're talking about fast frigates, F-15s and F-16s, C-5As and C-141s, and those types of things.

So you're right, there are some hidden equipment redistributions that do not show up when the budget request is sent over, but they do materially improve our capability and readiness.

Senator COCHRAN. Let me just say, and I don't really have any more questions, Mr. Chairman, but I want to congratulate those of you who are leading the way for the Reserve forces and National Guard units.

I don't know of any time in my memory when I have personally seen more dedication and hard work being put to the task of training, being prepared and being ready in case our Reserve forces and our National Guard forces were needed.

And I speak from some personal experience, having been a Navy Reserve officer, and having had the experience of weekend training experiences, and summer training experiences, when I'd go back on active duty for as much as 2 months in the summer to teach at Officer Candidate School at Newport.

And then comparing my observations in those days, 20-some-odd years ago, to what I see occurring at units and on air bases in our State, I don't think we worked as hard back then as these people are working now. I know we didn't.

We see people putting in overtime, coming in to the facilities during the week, working at night in their offices or in their homes, and just to be honest about it, we didn't do that when I was in the Reserves.

And I'm not being critical of the leadership we had then. But I'm impressed, Mr. Chairman, with the dedication and hard work that we see from those who are involved now in the Reserve forces.

And I commend the leadership for that, because I think that's where it comes from. I think we're seeing strong leadership, and I congratulate you for that.

Chairman STENNIS. Thank you very much.

INTRODUCTION OF MAJ. GEN. WARD

Gentlemen, we suspended before we got through with the opening statements here by a number of our witnesses, since Senator Stevens had a situation he had to meet.

So we go back now to our chiefs.

General Ward, you proceed in your own way.

RESERVE FORCES

STATEMENT OF MAJOR GENERAL W.F. WARD

STATUS OF RESERVE FORCES

Major General WARD. It's a pleasure to be here today to talk about the Reserve Personnel, Army [RPA], and Operation and Maintenance, Army Reserve [OMAR], appropriation requests.

With the help of committees such as this, the Army Reserve today is the best Reserve we've ever had. It's better trained, better led, more ready, and better managed, than ever before.

I would agree with Senator Cochran's observation that these troops work harder, and work smarter, and are more ready today than I have seen in my 37 years of commissioned service, 32 of that in the Reserve.

At the end of 1986 there were 285,000 paid drill-strength members in the Army Reserve in troop program units. We expect that number to go up to about 292,000 by the end of fiscal 1987. In fiscal 1988 we're requesting a paid drill strength of 297,000.

RECRUITING PROGRAM

Recruiting is moving along rapidly. The retention has improved. Even at 297,000, we're still 11,000 less than our wartime requirements. The increasing strength, however, allows the Army Reserve to satisfy its expanding missions and increase the level of its mobilization readiness.

For fiscal 1988, we're requesting an increase in the Active Guard and Reserve [AGR] program of 1,843 personnel, for a total of just over 14,000. And we're looking for a civilian technician increase of 397 personnel, for a total of 8,400.

This will increase the percentage of Army Reserve fulltime support personnel, including active component support, to about 9.8 percent, still short of the 14 percent that has been the historical target.

The majority of these AGRs will serve in Army Reserve units where they will mobilize and deploy. Along with the military tacticians, they assist in training, mobilization and planning operations, administration and logistics.

And their contributions are vital to readiness, particularly since so many units require a higher than normal level of fulltime support due to the nature of their mission and their early deployment.

INDIVIDUAL READY RESERVE

The second major part of the Army Reserve, beyond the troop program units, is the Individual Ready Reserve. It's the Army's source of pretrained military manpower, soldiers who will serve as the replacements and filler personnel for both active and Reserve component units.

That strength has grown from 213,000 in fiscal 1981 to a fiscal year 1986 end strength of 301,000, and perhaps around 330,000 today, as the military service obligation is increased to 8 years.

To emphasize the criticality of the IRR role, the involuntary screening of all eligible members is being conducted within the mobilization training program to accurately establish both the personal and professional indicators of readiness.

INCENTIVE AND EDUCATION PROGRAMS

The 1988 budget request includes $38 million for various incentive programs, and about $41 million for education programs, and I can't overstate how important these are, both for retention and recruiting. They're particularly important in that critical area of medical readiness.

OMAR BUDGET

The OMAR budget request is $879 million. That's $99 million over 1987. It looks like a substantial increase; however, of that increase, $33 million is for price inflation, and $38 million is simply a reclassification of functions into OMAR that related to a merger of the Army Reserve Center [ARPERCEN] and the Army Reserve Personnel Center [RCPAC].

That leaves us $28 million for OMAR program growth. And in compliance with congressional direction, we have funded the Reserve Component Automation System [RCAS] out of that; and the Army Reserve's share of that is $18 million, which leaves us with a real increase of only $4 million over the 1987 program.

It will therefore require extraordinary efforts to achieve our OMAR goals within the limited amount of real growth that's left.

We want to thank this committee and others for the dedicated procurement program which since 1981 have given $795 million in equipment funding, and in addition, almost $700 million for the Army procurement system.

This has improved our readiness considerably.

EQUIPMENT SHORTFALL

Our total shortfall in equipment is $2.5 billion at the end of fiscal year 1986, with a projected shortfall of equipment on hand of a little over $4 billion at the end of fiscal year 1990, according to the fiscal 1988 report called National Guard Reserve Equipment Shortage, dated February 1987.

The Army Reserve is an integral part, as you know, Mr. Chairman of the Total Army. It continues to grow in importance, and with your continued support, we will provide the trained units and qualified individuals to meet this Nation's mobilization requirements.

Thank you, Mr. Chairman.

Chairman STENNIS. Yes, sir. Thank you, General. Thank you very much for your fine statement.

[The prepared statement of Major General Ward follows:]

PREPARED STATEMENT OF MAJ. GEN. WILLIAM F. WARD

Mr. Chairman and Members of the Committee:

It is a pleasure for me to appear before you to present the FY 1988 Reserve Personnel, Army (RPA) and operation and maintenance, Army Reserve Appropriation requests.

The Army Reserve today is an essential element of the total Army. It is the best Army Reserve our nation has ever had. It is more ready and better trained than it has ever been. It is also better led and better managed than ever before.

The Reserve Personnel, Army (RPA) Budget Request for FY 1988 is for $2.3 billion, an increase of $161 million or 7.6% over FY 1987. Of this amount, $147 million is actual program growth.

At the end of FY 1986, there were more than 284 thousand paid drill strength members of the Army Reserve assigned to Troop Program Units. That number is expected to increase to 292 thousand by the end of FY 1987. For FY 1988, we are requesting a paid drill strength end strength of 297 thousand. This is continued growth but still 11 thousand less than our wartime requirement. The increasing strength enables the Army Reserve to satisfy its expanding mission and its increased requirement for greater mobilization readiness.

Also, for FY 1988, we are requesting an increase in the Active Guard Reserve (AGR) Program of 1,843 personnel to a total of just over 14 thousand and an increase in civilian technicians of 397 personnel to a total of over 8,400. This will increase the percentage of Army Reserve full time unit support, including active component support to 6.4 percent of paid drill strength.

The vast majority of these AGRs will serve in Army Reserve units, with which they would mobilize and deploy. These personnel support activation of or conversion to USAR aviation, Chemical, Signal, Medical and Transportation units. Along with military technicians, they assist in training, mobilization, planning, operations, administration, and logistics. Their contributions are vital to readiness, particularly since many units require a higher than normal level of full time support due to the nature of their mission and equipment.

The Individual Ready Reserve (IRR) is the Army's source of pretrained military personnel to serve as replacements and filler personnel for both active and reserve component units. Its strength has grown from 213 thousand in FY 1981 to an FY 1986 end strength of nearly 301 thousand. To emphasize the criticality of the IRR role, an involuntary screening of all eligible members is being conducted within the mobilization training program to accurately establish both personal and professional indicators of readiness.

The FY 1988 budget request includes $38 million for various incentive programs and about $41 million for education benefits. These programs are a significant help in increasing and maintaining our unit strength. The incentive program pays a variable bonus to persons enlisting in the Army Reserve in specific critical skills or high priority units. The education benefit program

The operation and maintenance, Army Reserve (OMAR) budget request for FY 1988 is for $879 million, an increase of $99 million over FY 1987. Of this increase, $33 million is price inflation and $38 million is for transfer of functions into OMAR. This leaves only $28 million as program growth. Within this $28 million, the Army, in compliance with congressional direction, has funded the Reserve Component Automation System (RCAS). The Army Reserve share of that effort is $18 million, an increase of $4 million over the FY 1987 program. Extraordinary efforts will be required if we are to achieve our OMAR goals with the limited amount of real growth left.

Since FY 1981 the Army Reserve has received approximately $795 million in Reserve equipment funding and almost $700 million worth of equipment from the Army procurement system. This equipment has improved Army Reserve training and capabilities. Progress is being made; however, we were short $2.5 billion at the end of FY 1986 and project a $5.6 billion shortage for FY 1987 compared to wartime equipment needs, according to the National Guard and Reserve Equipment Report for FY 1987, dated February 1987.

The Army Reserve is an integral and essential part of the Total Army and continues to grow in scope and importance. With your continued support, the Army Reserve will continue to provide trained units and qualified individuals to meet the nation's requirements.

NAVAL RESERVE

STATEMENT OF VICE ADMIRAL CECIL J. KEMPF

PROGRESS SUMMARY

Chairman Stennis. Now we come to Vice Admiral Cecil J. Kempf, Director, Naval Reserve. All right, Admiral.

Vice Admiral Kempf. Mr. Chairman, Senator Cochran, my formal statement covers our full request for funding needed to continue our program of modernizing and expanding the Naval Reserve, and I respectfully submit it to the subcommittee.

Chairman Stennis. It will be received and given careful review.

Vice Admiral Kempf. This morning, I would like to summarize our progress to date, and outline our program for the future.

Naturally, our request for funding in the Naval Reserve appropriations is essential to our future success.

As indicated in my prepared statement, Naval Reserve readiness has continued to show an overall improvement over the past year. We still have some equipment shortfalls that reduce the readiness of hardware units, but the vast majority of these deficiencies will be corrected with the adoption of our 5-year program.

Continued improvements in recruiting, training and retention have helped increase the manning and readiness of our nonhardware units that will augment active force units upon mobilization.

Our planned growth in drilling selected reservists is on track. We have more than 118,000 of these selected reservists today, and our request is to grow to almost 133,000 by the end of fiscal year 1989.

SPUR PROGRAM

We are making considerable progress in our program to improve the training of this growing Selected Reserve. For example, we've started our surface program to upgrade readiness, or SPUR, with the specific goal of improving the quality of training within the Surface Reserve Force.

And that's some of the training that you spoke of, Senator, much improved. We recognized those deficiencies. It's very difficult to train selected reservists, particularly in midcountry Reserve centers that are not near hardware on which they could train.

SPUR is focused on those reservists not assigned to hardware units. Unlike units attached to Navy Reserve ships, shore intermediate maintenance activities, and construction battalions, they do not routinely have the opportunity to reap the benefits of hands-on training.

EQUIPMENT MODERNIZATION PROGRAM

Our equipment modernization program not only improves readiness, it improves our capability by insuring interoperability with active component units in providing increased war-fighting capacity.

CARRIER WINGS

Our two carrier air wings are well on their way to reaching our goal of being fully modernized.

One carrier air wing is substantially modernized today, flying F–14s, F/A–18s, and E–2Cs. Modernization of the second wing is underway and will be completed by 1981 in full synchronization with the conversion of our A–7E configured carriers to support F/A–18 aircraft.

MARITIME PATROL CAPABILITY

Our maritime patrol capability has been enhanced markedly through the completion of the TACNAVMOD of our Reserve P–3A/B aircraft. Additionally, five of our 13 P–3 squadrons are AQA–7 Triple Vernier equipped, and the transition of the remaining eight will be completed by 1989.

We will begin in 1988 the transition of the first P–3C squadron with six P–3C update three aircraft authorized and funded in fiscal year 1986, and we will add four more new P–3C aircraft procured with fiscal year 1987 funds, for a total of 10 assigned to this squadron by the end of fiscal year 1989.

HELICOPTER MODERNIZATION

We are also modernizing our helicopter force. We have recently signed a contract for a new helicopter for our Combat Search and Rescue, CSAR, mission. These much-needed helicopters will be purchased with funds first appropriated in fiscal year 1985 by this committee and will markedly enhance the Navy's CSAR capabilities. Delivery of the first helicopter to the Naval Reserve will be in fiscal year 1989.

AIRBORNE MINE COUNTERMEASURE SQUADRONS

This year we add the first of two airborne mine countermeasure squadrons to the Naval Reserve. We have also completed transition to SH-2F aircraft in our LAMPS squadrons that operate with our expanding frigate force.

FRIGATE PROGRAM

Our program to have 26 frigates in the Naval Reserve by the end of fiscal year 1990 is on course. We will have 19 frigates this June when FF-1058, the MEYERCORD, and FFG-23, the PULLER, are transferred to the Naval Reserve. Four additional ships of the FFG-7 class and the final FF-1052 will join the Naval Reserve in fiscal year 1988. The final two FFG-7s are scheduled for fiscal year 1990.

In 1988 the Naval Reserve will also receive its first of 14 new AVENGER class mine countermeasure ships. Our total request for the Reserve Personnel, Navy appropriation for fiscal year 1988 is $1.516 billion and is $1.571 billion for fiscal year 1989. Our request for fiscal year 1988 for the Operations and Maintenance, Naval Reserve appropriation is $957.1 million and is $1.037 billion for fiscal year 1989.

I ask your support for these requests and the programs they support, and I would be pleased to respond to any questions you may have. Thank you, sir.

Chairman STENNIS. Thank you. Thank you very much, Admiral. That was a good statement.

[The prepared statement of Admiral Kempf follows:]

PREPARED STATEMENT OF VICE ADM. CECIL J. KEMPF

Mr. Chairman and Members of the Committee:

It is my pleasure to appear before you today to report our progress in modernizing and expanding the Naval Reserve and to present our program for Fiscal Years 1988 and 1989.

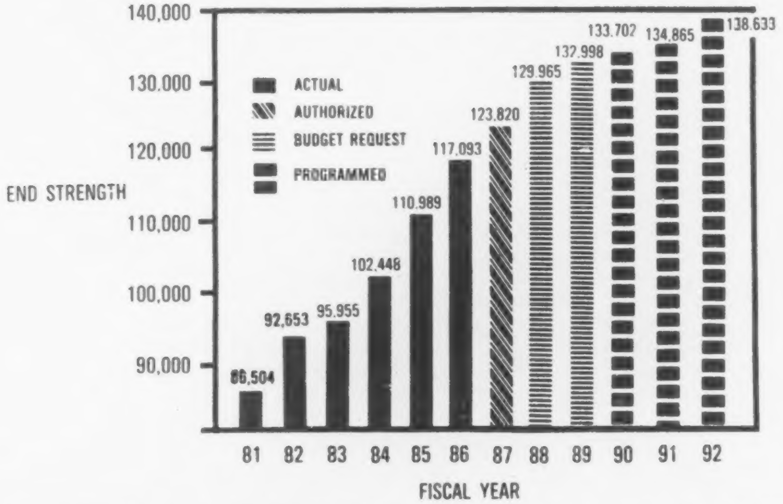
AN INTEGRATED FORCE

The Chief of Naval Operations, in his first posture statement, has reported the status of the United States Navy to Congress. He stated that "today's Navy is the strong, capable instrument of maritime power the United States requires, more ready than ever to do what is asked of us in peace, crisis or war." Admiral Trost also emphasized that today's Navy is an integrated Total Force which depends heavily on the Naval Reserve. As he indicated, the Navy has been implementing a logical and efficient program to strengthen its war fighting capability through a process of horizontal integration of equipment, i.e., compatible equipment in both the active and Reserve portions of the Navy's Total Force. Providing compatible equipment is only part of the program. The Naval Reserve is also integrated into fleet operations, tactical training and war planning. Naval Reserve ships are a part of the 600 ship Navy. By 1990 one of every 12 Navy ships will be in the Naval Reserve. Naval Reserve aircraft are an essential part of the Navy's airborne warfighting capability. The two Reserve carrier air wings will be completely modernized by 1991, and we will continue to upgrade the capability of Naval Reserve Maritime Patrol squadrons which constitute more than one third of the Navy's total force for this important mission. We are also modernizing and expanding our helicopter inventory. But equipment is only part of the readiness capability equations. We need adequate numbers of properly trained Naval Reservists as well, both drilling Selected Reservists and full-time support personnel.

Selected Reserve Strength

I am pleased to report continued increases in drilling Selected Reserve strength. These Selected Reservists, over 117,000 at the end of Fiscal Year 1986, are the core of the Naval Reserve program. They are the Navy's primary source of immediate mobilization manpower. We expect the number of these Selected Reservists to grow to almost 124,000 by the end of Fiscal Year 1987. In Fiscal Year 1988 our drilling Naval Reservists will increase to almost 130,000 and to about 133,000 by the end of Fiscal Year 1989.

NAVY DRILLING SELECTED RESERVE*



*RESERVISTS IN PAID STATUS (CATEGORIES A&Q), DOES NOT INCLUDE TRAINING PIPELINE OR FULL-TIME SUPPORT (TAR & TEMAC) PERSONNEL

The requirement for Selected Reservists, and all other manpower for mobilization, is determined by the Navy's Manpower Mobilization System (NAMMOS), based on analyses of the fleet commanders-in-chief and other major commands' demands for manpower upon mobilization. Drilling Selected Reserve strength in the budget request represents almost 98 percent of NAMMOS requirements by the end of Fiscal Year 1989. The shortfall in medical personnel is the major personnel deficiency. We continue to investigate new management and training techniques and are participating in a joint services effort, led by the Office of the Secretary of Defense, to access and retain more medical personnel.

In Fiscal Year 1986, the end strength for all Naval Selected Reservists, of which 18,391 were full-time active duty Reserve personnel, was 141,504. In Fiscal Year 1987, the authorized end strength for Naval Selected Reservists is 149,486, of which 21,476 are full-time active duty Reserve personnel. We are confident of our ability to achieve these goals.

Our request for Fiscal Year 1988 is for an end strength of 157,400 Selected Reserve personnel. This total includes 22,505 full-time active duty Reservists. Training and Administration of the Reserve (TAR) personnel and a small number of Selected Reserve officers recalled for headquarters duty in accordance with Title 10 U.S. Code, Section 265, account for 20,989 of this end-strength; the remaining 116 are Reserve recruiters on Temporary Active Duty (TEMAC).

For Fiscal Year 1989, we are requesting a total Selected Reserve end strength of 161,700, including 23,665 full-time support personnel of which 22,100 are TAR personnel and recalled Selected Reserve Officers; the remaining 1,565 personnel are TEMAC Reserve recruiters.

SUMMARY OF NAVY SELECTED RESERVE PERSONNEL

(END STRENGTH)

	FY 1986	FY 1987	FY 1988	FY 1989
DRILLING SELECTED RESERVISTS (CAT A & Q)	117,093	123,820	129,965	132,998
TRAINING PIPELINE (CAT F & U)*	6,020	4,190	4,930	5,037
FULL-TIME SUPPORT (FTS) PERSONNEL	18,391	21,476	22,505	23,665
TOTAL	141,504	149,486	157,400	161,700

* A LIMITED NUMBER OF PERSONNEL IN TRAINING CATEGORY D (e.g., 388 in FY-89) ARE ALSO INCLUDED IN THIS FIGURE.

The drilling Selected Reserve is programmed to increase by 6,145 during Fiscal Year 1988 and by 3,033 during Fiscal Year 1989. These personnel are necessary for the Naval Reserve to fulfill its expanding roles, particularly to man new ships and aircraft, and to provide additional personnel in mine countermeasures and medical support.

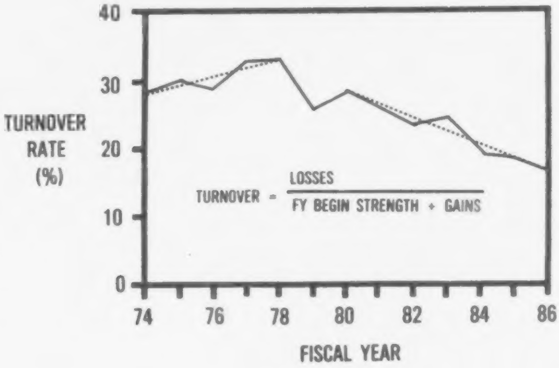
Growth of full-time support Reservists (1,029 in Fiscal Year 1988 and 1,160 in Fiscal Year 1989) is necessary to meet manning requirements in Naval Reserve ships, Shore Intermediate Maintenance Activities (SIMAs), Reserve force Aircraft Squadrons (RESFORONs) and other force level increases. Additionally, full-time support increases are required to support continued TAR rating expansion with associated billet conversions from USN to TAR.

Navy TARs are unique in the Armed Forces. They are Reservists on full-time active duty whose job is to administer and train our drilling Reservists. They are career military personnel who are in most cases indistinguishable from their regular component colleagues. TARs experience the usual Navy permanent change of station (PCS) moves, are on call seven days a week, and perform the same tasks as their regular Navy counterparts. At any given time, approximately one out of five TAR officers is serving with an active component activity, most as integral parts of the crews of active component ships or aircraft squadrons. Naval Reserve ships -- with TARs comprising the majority of their active duty manning -- are at sea about three quarters as often as active force ships operating from CONUS bases. TARs in our aircraft squadrons receive the same training and meet the same standards as active force personnel. They operate from coast to coast, deploy briefly aboard carriers, and -- in the case of patrol and transport squadrons -- deploy for short periods overseas to fly operational missions for the Navy.

With our expanding Selected Reserve, and state-of-the-art ships and aircraft, we must attract and keep qualified TAR personnel. The Sixth Quadriennial Review of Military Compensation (QRMC) is considering incentives to address this problem.

We continue to see improvement in the enlisted Selected Reserve turnover rate. During the past year we lowered our previously best turnover rate from 18.7 percent to 16.5 percent, a 12 percent improvement in a single year and a 38 percent improvement over the past five years. Turnover rate is the best measure of personnel stability. It is calculated as losses divided by the sum of beginning inventory plus gains during a fiscal year. A low turnover rate indicates stability in the force. Consequently, fewer new accessions and less initial active duty training periods are required to meet target strength increases. On the following chart, the dotted lines indicate the unfavorable turnover rates of the late 1970's, as well as the very positive trends achieved in the 1980's.

ENLISTED SELRES HISTORICAL TURNOVER RATES



Retention of our Selected Reservists is essential, particularly in our high-priority units. For example, a Naval Reserve ship is usually underway each drill weekend, including Friday nights, and most of the annual two-week training period. Except for a fifth paid weekend drill, Selected Reserve crew members receive no additional incentive for serving in an around-the-clock, at-sea environment. Other Reservists, drilling at their local Reserve Centers, receive the same pay and drill credit, but enjoy free time after normal working hours to be with their families and friends. It is unreasonable to rely on pride and professionalism to man such units as Naval Reserve ships. The Sixth Quadriennial Review of Military Compensation (QRMC) is considering this problem.

Naval Surface Reserve

By the early nineties 46 of the 52 Naval Reserve ships will be part of the 600 ship Navy. This fiscal year, we will add three PERRY class FFG-7s and one KNOX class FF-1052 to the Naval Reserve, bringing our frigate total to 19. Four more FFG-7s and one FF-1052 in Fiscal Year 1988 will bring us to a total of 24. We will have 26 modern frigates in the Naval Reserve by 1990.

SHIPS	FY-86	FY-87	FY-88	FY-89	FY-90	FY-91	FY-92	FY-93
FFG-7	9	12	16	16	18	18	18	18
FF-1052	6	7	8	8	8	8	8	8
DD-946	1	1	1	1	1	1	1	1
LST	2	2	2	2	3	3	3	3
LSD-38	0	0	0	0	0	1	1	1
LPD-2	0	0	0	0	0	0	1	1
MSO	18	18	17	13	11	8	3	0
MCM	0	0	1	5	7	10	13	14
MHC	0	0	0	0	0	0	2	3
ARS	3	3	3	3	3	3	3	3
TOTAL	39	43	48	48	51	52	53	52

This year, we will establish five additional Craft of Opportunity Program (COOP) units, for a total of fourteen, with five more programmed in Fiscal Year 1988 and the final three programmed for Fiscal Year 1989, bringing the total to 22 by the end of that year. We will commission two more Mobile Inshore Undersea Warfare (MIUW) units this year and will add three more in both Fiscal Years 1988 and 1989, for a total of 26 units by the end of Fiscal Year 1989.

Today, the Naval Reserve contains 82 percent of the Navy's Minesweeper (MSO) capability. Beginning in Fiscal Year 1988,the first "Avenger" class Mine Countermeasures (MCM) ship will join the Naval Reserve with four more MCM ships programmed for Fiscal Year 1989. Construction of the new Italian designed Coastal Minehunter (MHC) ships, which will be built in the U.S., is expected to begin in Fiscal Year 1988; and the first two of these ships are programmed to be assigned to the Naval Reserve in Fiscal Year 1992. Ships of these new-construction classes will be assigned to the Naval Reserve after each ship operates as a part of the active force for approximately one year.

Naval Air Reserve

Modernization through horizontal intergration continues in the Naval Air Reserve. Our first Reserve F/A-18 squadron at NAS Lemore, California received its initial increment of aircraft in October of 1985, and a second squadron at Point Mugu, California will transition this year. All of our remaining light attack squadrons have transitioned to the A-7E aircraft. The A-7E squadron in Alameda, California will transition to medium attack A-6Es in Fiscal Year 1988.

Two of our four fighter squadrons have completed transition to F-14s, and the remaining two will complete their conversion by the end of this year. The accelerated transition of the last two Reserve F-14 squadrons was made possible by a Congressional addition of $68 million to the Fiscal Year 1985 Budget for the remanufacture and upgrade of 25 pre-production and early production F-14 aircraft to present fleet configuration. Congressional addition of five A-6E aircraft in the Fiscal Year 1986 Budget opened the door for establishment of medium attack capability in the Naval Air Reserve. In addition to the A-7E to A-6E squadron transition at NAS Alameda, California, a second squadron will convert to A-6Es at NAS Atlanta, Georgia in 1990. These squadrons will also receive KA-6D tanker aircraft, permitting the disestablishment of our two existing tanker squadrons of KA-3B aircraft, which face service life expiration. Both of our Airborne Early Warning (AEW) squadrons are now flying the E-2C. Transitioning the two Electronics Warfare squadrons from EA-6As to EA-6Bs in Fiscal Years 1989 and 1991 will complete the full modernization of our two Reserve Carrier Air Wings.

The Naval Reserve now operates 27 C-9B/DC-9 aircraft. But the Center for Naval Analyses' recent DON Organic Airlift Study, 1986 shows a 60% shortfall in the Navy inventory for heavy to medium lift aircraft needed to support the Navy intra-theatre airlift requirements during wartime. We intend to address acquisition of the additional aircraft to perform this mission during the formulation of future budgets.

Our Maritime Patrol Air capability has been enhanced markedly through the completion of the TACNAVMOD program for our Naval Reserve P-3A/B aircraft. Five of our P-3 squadrons are AQA-7 Triple Vernier (3V) equipped, and transition of the remaining eight will be completed in Fiscal Year 1989. We established our second Master Augment Unit (MAU) at NAS Moffett Field, California, to train crews in fleet model P-3Cs for augmentation of active force squadrons upon mobilization. Additionally, in 1988 we will begin the transition of the first P-3C Reserve squadron (VP-62 at NAS Jacksonville, Florida) with the six P-3C Update III aircraft authorized and funded in the Fiscal Year 1986 Budget. Four additional P-3C aircraft procured with Fiscal Year 1987 funds will be assigned to VP-62 in Fiscal Year 1989. A second Reserve P-3C Update III squadron is planned for Fiscal Year 1993.

We are continuing to make great strides in our rotary wing aircraft community. To meet fleet requirements, we will consolidate our two Naval Reserve Light Attack Helicopter (HAL) squadrons and the Navy's only Combat Search and Rescue (CSAR) squadron to form two Helicopter Combat Support Special (HCS) squadrons, one on each coast. The first of these new squadrons will stand up in Fiscal Year 1989 and the second in Fiscal Year 1990. These squadrons will provide helicopters for Navy Special Warfare Units as well as CSAR capability for the fleet. A contract was signed this past September to provide the Navy with a new, all-modernized aircraft (HH-60H) to support the HCS mission. Delivery of the first aircraft is anticipated in Fiscal Year 1989.

In Fiscal Year 1987, the Naval Reserve assumed a new mission with the stand-up of the first of two Reserve Airborne Mine Countermeasures (AMCM) helicopter squadrons, flying the RH-53D. The second squadron will be formed in 1989. These squadrons will be sited on opposite coasts to enhance their responsiveness to fleet requirements. To increase their effectiveness further, we are looking at a Mobile Support Van concept for these squadrons which would increase their mobility, supportability, and sustainability.

READINESS IMPROVEMENTS

Naval Reserve readiness has continued to show an overall improvement during the past year, but we still have insufficient equipment for many of our construction battalions. Improvements in recruiting, training and retention have helped to increase the manning of our non-hardware reinforcing and sustaining units that will augment active forces upon mobilization.

As a result of force modernization efforts with state-of-the-art aircraft and weapons systems, the capability of aviation units is improving. Squadrons outfitted with fleet-compatible aircraft are mobilization-ready assets available to fleet commanders. I am confident that existing and proposed aviation modernization programs will enable us to sustain our progress in improving aircraft squadron and wing readiness and capability.

The readiness status of ships assigned to the Naval Reserve continues to increase because of improved manning and enhanced training aboard our ships. This positive trend is particularly noteworthy since it has occurred while our frigate fleet has expanded by at least four ships per year.

Our more than 2700 reinforcing and sustaining units are reporting manning levels three percent better than a year ago because of better recruiting and increased emphasis on retention. Overall readiness of these units improved during Fiscal Year 1986. This is a significant accomplishment, as it occurred during a year of continued growth of these units and the implementation of a large fleet hospital program.

While the acquisition of modern hardware is a major factor in readiness of both the Naval Air and Surface Reserve Forces, the effectiveness of training is also a significant factor. Training Reservists in landlocked areas of the country presents a particular challenge.

A major new Naval Reserve initiative will address this and enhance the overall readiness of the Surface Reserve. It is called "SPUR", the Surface Program to Upgrade Readiness.

SPUR is an umbrella term for a package of programs addressing many Surface Reserve manpower and training issues. It incorporates the best of previous ideas and successes to train Reservists in their mobilization assignments. There are five dimensions, or "points," to the SPUR: Mobilization, Organization, Resources, Experience and Training.

The "Mobilization" point of SPUR stems from recent fleet exercises which showed that ships which are already deployed or ready for deployment (approximately half our ships) had been brought to full manning with active personnel from the shore establishment before mobilization was declared. This led to the logical conclusion that we should only be training Naval Reservists to augment half of the ships previously planned for, and the balance should be trained to replace the active forcepersonnel pulled from the shore establishment to man the deployed or ready-to-deploy ships.

The "Organization" point recognizes that today's Naval Reserve can no longer be a manpower pool of available people who are trainable. Instead, it must be a fully trained and ready force, capable of doing its job immediately upon mobilization. To accomplish this, SPUR includes a network of Readiness Centers at 40 locations throughout the United States to provide sites for specialized training opportunities and increased scheduling support.

The "Resources" point encompasses the best possible use of available resources, such as funding, facilities, equipment and manpower. For example, the development of Navy Training Plans (NTPs) for each of the programs in the Naval Reserve will ensure the efficient utilization of those resources, i.e., personnel, training aids, curricula and classroom space necessary to train and qualify our people.

The "Experience" point refers to the Navy's conversion of 9,000 billets slated for reassignment ashore (currently non-rated) to rated Selected Reserve Billets. This move will enable the Surface Reserve to access more fleet experienced petty officers, bring ship reinforcement units to approximately the same ratio of rated and non-rated personnel as the active component of the ships the units reinforce, and reduce the number of non-prior service Sea and Air Mariner (SAM) accessions from 10,000 to approximately 7,000 per year.

"Training", the final point, is SPUR's bottom line. Study after study has shown that when a Reservist chooses to leave the Naval Reserve, inadequate training is the major factor. SPUR's five points will correct that situation by providing MORE TRAINING.

SURFACE PROGRAM TO UPGRADE READINESS (SPUR)

TRAINING
RESOURCES
EXPERIENCE
MOBILIZATION
ORGANIZATION

MOBILIZATION - STRUCTURING NAVAL RESERVE SHIP REINFORCING UNITS TO ACCOMMODATE "REAL WORLD" MOBILIZATION SCENARIO

ORGANIZATION - IMPROVING SPAN OF CONTROL AND MAKING BETTER USE OF PERSONNEL TO PROVIDE TRAINING IN THE FIELD

RESOURCES - OPTIMUM USE OF FUNDING, FACILITIES AND EQUIPMENT

EXPERIENCE - CHANGING NAVAL RESERVE RATE MIX TO MAKE OPTIMUM USE OF FLEET-EXPERIENCED PERSONNEL

TRAINING -IMPLEMENTING NEW TRAINING METHODS (FOR NON-HARDWARE UNITS, APPROX 95,000 SELRES)

TRAINING

The primary mission of the Naval Reserve is training to maintain mobilization readiness. Appropriately, the fundamental objective of SPUR is the revitalization of Surface Reserve training. The network of "Readiness Centers" will make fleet-oriented training more available. These "beefed up Reserve Centers" will coordinate off-site training requirements and provide much of the hands-on training in specific disciplines for Reservists whose principal drill site is at smaller, "satellite" Reserve Centers in the surrounding area.

Reserve Billet Training Plans (RBTPs) are being revised and updated to meet program sponsor and gaining command requirements for virtually every billet in the Reserve Force. Individual RBTPs will be the foundation of unit training plans and the standard by which the effectiveness of unit training will be measured. Each RBTP will be approved by the Navy Program Sponsor's agent, normally a Fleet Type-Commander or the gaining command.

SPUR encompasses a number of innovative training methods. For example, formal training for Surface Reservists at Fleet Training Centers on weekends will be in place in Fiscal Year 1987 with the assignment of TAR instructors in Fleet Training Centers to support more than 40,000 weekend student quotas for Reservists each year.

Another innovation, the Automated Billet Qualification Tracking System (ABQTS), will track an individual's progress in qualifying for a Reserve billet. A pilot program for the system is in place at Shore Intermediate Maintenance Activities (SIMAs). We expect full implementation, nationwide, in Fiscal Year 1988.

We have developed a formal exportable training program which will transport an instructor from the active training site, gaining command or large Reserve activity to remote sites to complement local instructor capability. Pilot programs began in 1985 for shipboard units, SIMAs and cargo handling battalions.

To augment local instructor capability further, a formal contract instructor program will provide training not available or economical within our own system. We will take advantage of Vocational (VOTECH), trade school, junior college and contractor specialized training, such as the Shop Qualification Improvement Program (SQIP) and Hospitalman VOTECH program.

Navy Enlisted Classification (NEC) attainment methods for Naval Reservists are also expanding. Methods now include modularization of short NEC advanced schools, development of appropriate VOTECH programs, and identification of civilian equivalent experience and training.

We are improving Naval Reserve instruction with on-board training packages, by interactive video which provides computer capable instruction that will support curricula with small student populations and by conversion of existing Navy curricula to weekend formats.

Finally, in keeping with SPUR's philosophy of integrating proven training techniques with new ones, 35 Reserve Centers will continue to bring the ship to the sailor with the shipboard simulator (SBS). There are also 47 centers equipped with Damage Control Trainers (DCTs) which provide hands-on battle damage repair training. Plans call for a total of 70 DCTs.

The Naval Air Reserve, in addition to providing combat ready squadrons for mobilization, must also provide trained aircrews and maintenance personnel to fleet squadrons upon mobilization to fill wartime allowances for those squadrons. For aircrew personnel alone, this commitment requires training for more than 800 pilots and aircrewmen in most of the Navy's aircraft communities.

Until 1984, we attempted to train these personnel in our Reserve squadrons; but we could neither accommodate sufficient personnel nor train them in fleet-compatible equipment. In 1984, we established Squadron Augment Units (SAUs) in Fleet Replacement Squadrons (FRSs) to train these personnel in the aircraft they would operate and support if mobilized. In addition, two Master Augment Units (MAUs) have been established to train P-3C augment crews, using aircraft on loan from the active force. In 1985, we expanded this concept further by scheduling our SAU and MAU aircrews to fly with their gaining commands, the specific fleet squadrons they would augment at mobilization. We are most pleased with the progress of this program.

We now have SAUs flying the F-14A, A-7E, A-6E, E-2C, S-3A and SH-3H. In Fiscal Year 1987 we plan to commence SAU training in our F/A-18 aircraft at NAS Lemoore, California.

We also have specific training plans for Naval Air Reserve personnel who are not directly associated with hardware units. Air Reserve units nationwide are tied into Reserve Training Tracks (R-Tracks), an automated system which defines minimum mobilization training requirements for individual billets. Nearly 1,700 R-Tracks have been developed which define specific training requirements for more than 31,000 TAR and Selected Reserve billets.

In addition, the Aviation Training Improvement Program (A-TIP), an automated bank of more than 40,000 questions covering almost all Naval Air Reserve weapon systems, is currently under development. This program targets training deficiencies within a squadron or unit, thereby eliminating redundant training.

Formal training is accomplished through Aviation Training Series (ATS), Reserve Courses (R-Courses), Z-Courses and Compressed Courses. ATSs provide standardized lesson guides for rate and billet training; 256 such courses are now available. R-Courses lead to the attainment of NECs; almost 100 R-Courses will be available by the end of Fiscal Year 1987. Z-Courses are segmented courses which also lead to an NEC; 14 such courses are on line now. Completion of Z-Courses requires two Active Duty for Training (ACDUTRA) periods of two weeks each, with weekend study required in between. Compressed Courses, originally up to three weeks in length, are taught at active Naval Maintenance Training Groups (NAMTRAGRU). These courses are compressed into 12 to 14 ten-hour days.

Thus, as a result of practical, fleet-oriented training in both the Surface and Air Reserve, the overall readiness of the Naval Reserve continues to improve. The exceptional performance of Naval Reservists in front line contingency operations, such as last year's Gulf of Sidra operation, as well as Reservists' day-in and day-out support of active force operations, clearly demonstrates the effectiveness of Naval Reserve training.

NAVAL RESERVE FUNDING REQUEST

The Naval Reserve is provided essential support by two appropriations: Reserve Personnel, Navy (RPN) and Operation and Maintenance, Navy Reserve (O&MNR).

The President's Budget also identifies $148.5 million in Fiscal Year 1988 and $163 million in Fiscal Year 1989 in the Aircraft Procurement, Navy (APN); Weapons Procurement, Navy (WPN); and the Other Procurement, Navy (OPN) appropriations. Further, the Fiscal Years 1988 and 1989 Military Construction, Naval Reserve (MCNR) appropriation request of $73.7 and $56.9 million, respectively, will provide much needed design and facilities construction for the Naval and Marine Corps Reserve.

The total funding support requested for the Naval Reserve exceeds $2.9 billion for Fiscal Year 1988 and is almost $3 billion for Fiscal Year 1989.

I would like to discuss the RPN and O&MNR appropriations in some detail.

Reserve Personnel, Navy (RPN)

The RPN appropriation is divided into two budget activities. Budget Activity One provides funding for Unit and Individual Training. Budget Activity Two funds Other Training and Support, including active duty TAR personnel, the Naval Reserve Officer Training Corps, Armed Forces Health Professions Scholarship Program, and the Navy Junior Reserve Officer Training Corps.

The total Fiscal Year 1988 RPN request is for $1,516.1 million, which consists of $663.2 million for Budget Activity One and $852.9 million for Budget Activity Two. This is a total increase of $119.1 million over Fiscal Year 1987.

Our Fiscal Year 1989 request is for $1,571.2 million, which includes $693.3 million for Budget Activity One and $877.9 million for Budget Activity Two. This represents a total increase of $55.1 million over Fiscal Year 1988. Approximately $107.4 million in Fiscal Year 1988 and $64.5 million in Fiscal Year 1989 is a result of the requested strength growth. The remaining increase is the result of pay raise annualization, Social Security rate escalation, program growth, Individual Ready Reserve (IRR) Test, and other training support costs.

The Fiscal Years 1988 and 1989 Budget Request continues funding for a one day recall of all members of the IRR. This screening process will enable the services to evaluate the availability and readiness of this major source of trained personnel. The Reserve incentive program includes very selective implementation of prior and non-prior service enlistment, reenlistment, Reserve affiliation and IRR bonuses.

In addition, medical recruiting incentive payments have been expanded to enhance Reserve recruiting programs for physicians and nurses with critical wartime medical skills. This improvement in medical incentives includes stipend and education loan repayment programs which were first authorized in Fiscal Year 1986.

The requested increases in RPN funding are necessary for the Naval Reserve to comply with Congressional guidance to increase Reserve manning for Naval Reserve ships and to continue our growth in Selected Reserve strength to meet mobilization requirements.

Operation and Maintenance, Navy Reserve (O&MNR)

The Naval Reserve is dependent upon funds in the O&MNR appropriation for support of Mission Forces, Depot Maintenance, and Other Support. Support for Mission Forces includes funds for fuel, intermediate maintenance, repair parts and related support for the operation of aircraft in both the Naval and Marine Corps Reserve. It also includes operating, maintenance and support funds for Naval Reserve ships, as well as funds for Reserve Construction Battalions, Cargo Handling Battalions, Mobile Inshore Undersea Warfare units, Special Combat Support Forces, and other Surface programs. Depot Maintenance includes funds for the rework of aircraft and engines, the installation of aircraft modifications and Contractor Engineering Technical Services support. The Other Support category provides funding to operate and maintain Air Stations, Reserve Centers, and Reserve Facilities supporting Naval Reserve forces and for various command and administrative activities, including recruiting and advertising.

The funding requested for the O&MNR appropriation for Fiscal Year 1988 is $957.1 million, which is a $65.3 million net increase over the Fiscal Year 1987 funding level. Mission Forces (Budget Activity 1) increases $9.8 million, Depot Maintenance (Budget Activity 2) increases $31.1 million and Other Support (Budget Activity 3) increases $24.5 million.

The funding requested for the O&MNR appropriation for Fiscal Year 1989 is $1,036.8 million, which is a $79.7 million net increase over the Fiscal Year 1988 funding level of $957.1. Mission Forces (Budget Activity 1) increases $68.8 million, Depot Maintenance (Budget Activity 2) increases $4.6 million and Other Support (Budget Activity 3) increases $6.4 million.

The increased O&MNR funding levels in FY 1988 and FY 1989 will provide adequate support for the following areas of growth: (1) increased aircraft operating and maintenance costs in support of a more modern mix of aircraft, including the F/A-18, P-3C in fiscal Year 1988 and HH-60H in Fiscal Year 1989; commissioning of the second Airborne Mine Countermeasures (AMCM) squadron in the RH-53D helicopter in Fiscal Year 1989; beginning transition of the Marine F-4S units to the F/A-18 aircraft; expansion of the Marine Corps Reserve KFIR (F-21) adversary aircraft squadron; and funding of the flying hour program at 87 percent of the Primary Mission Readiness (PMR) level, which places the Tactical Naval Air Reserve Forces on the same funding base as the active force; (2) increased operations, maintenance, modernization and outfitting costs resulting from four additional FFG-7 class ships and one FF-1052 class ship joining the Naval Reserve in Fiscal Year 1988; (3) expansion of the mine countermeasures Craft of Opportunity (COOP) Program; and (4) increased training, equipment, and base operating support requirements associated with growing Selected Reserve strength levels as the Naval Reserve builds toward the Navy Manpower Mobilization System (NAMMOS) goals.

Programmatic decreases primarily reflect: (1) reduction in the flight hour program for transitioning aircraft (A-7B, F-4S, E-2B); (2) fewer airframe and engine reworks and modification installations; (3) a decrease in acquisition of spare parts for Mobile Inshore Undersea Warfare (MIUW) vans in Fiscal year 1989; (4) two fewer regular ship overhauls in Fiscal Year 1988 as compared to Fiscal Year 1987; and (6) several adjustments in Other Support related to one-time Fiscal Year 1987 costs and other projected savings.

As mentioned earlier, the O&MNR appropriation also supports Naval Reserve recruiting and advertising activities, including support for the enlisted Sea and Air Mariner (SAM) and the Officer Sea and Air Mariner (OSAM) programs. Meeting our recruiting goals is essential to the continued success of the Naval Reserve in fulfilling our mission in support of the National Maritime Strategy. The Fiscal Year 1988 and 1989 funding levels support specifically targeted advertising efforts to help meet the strength and quality goals of our expanding Naval Reserve and have been adjusted to meet The Department's advertising mix study savings by Fiscal Year 1990.

SUMMARY

Our ambitious program to expand and modernize the Naval Reserve is on track.

We are increasing the number of Selected Reservists in order to meet wartime requirements as rapidly as feasible.

We are expanding our cadre of TAR personnel to man and support increasing numbers of modern ships and aircraft and to support and train a growing Selected Reserve.

We are implementing new training programs to keep pace with the demands of a more sophisticated Naval Reserve.

We are proud to say that the Naval Reserve is evolving rapidly from a force in reserve to a force in being, fully integrated into the Navy's Total Force.

I will be happy to respond to any questions or provide any additional information you may require.

MARINE CORPS RESERVE

STATEMENT OF MAJOR GENERAL JOHN J. SALESSES, USMCR, DCS FOR RESERVE AFFAIRS

CURRENT STATUS OF RESERVE FORCES

Chairman STENNIS. All right, next is Major General John J. Salesses, the Deputy Chief of Staff for Reserve Affairs for the Marine Corps. We are glad to have you here, sir, along with your brethren there at the table, and we would be delighted to hear from you.

General SALESSES. Thank you very much, Mr. Chairman, distinguished Members of the committee. It is a pleasure for me to be invited before you this morning to report on the status of the Marine Corps Reserve. As you may know, I am a reservist on active duty for 179 days, serving as the Deputy Chief of Staff for Reserve Affairs.

I am pleased to report that the Marine Corps Reserve has achieved the highest level of military capability and combat readiness that I have observed in my 33 years as a Marine. Senator Cochran a few moments ago commended the leadership of the Reserve forces, but I would like to emphasize that it is these young reservists, the Marines themselves, who demonstrate, I think, the improvement in our Reserve.

One of the spinoffs, if I may, when Congress determined to place more emphasis on Reserve forces was not only a savings of dollars but also an increase of awareness and citizenship on the part of these many young reservists who are active today. So I think that the comments the Chair made earlier this morning about participation in the civilian community is very apparent in the Reserve program itself, but it has had a great effect for our citizenship.

PERSONNEL AND EQUIPMENT PROGRAMS

Your support of our personnel and equipment programs has resulted in significant quantitative and qualitative improvements, such as the achievement of 100 percent nonprior service recruiting with 98 percent high school graduates and with the achievement of 98 percent of the dollar value and 94 percent of all required major equipment in the Marine Corps Reserve by the end of fiscal year 1990.

Significantly more important than qualitative indicators is the growing recognition of the roles and the utility of the Reserve. The Marine Corps has conducted a review of the purpose and direction of its Reserve. The Commandant has approved a balanced program designed to achieve combat readiness levels for a Reserve component comparable to the active force.

STRATEGIES FOR FUTURE DEVELOPMENT

We have developed a comprehensive framework to guide us in arriving at these objectives. This framework, our roadmap for the future, is supported by three fundamental strategies; that is, to recruit and train and retain quality Marines; second, to maintain the modernization effort to provide quality equipment; and third, to improve active and Reserve integration.

The Marine Corps is committed to this program for the future of its Reserve. It clearly recognizes the Reserve component as a critical partner in the military capability of our cause. Maximizing the Reserve contribution, however, requires your continued support to meet the challenges of tomorrow.

MISSION OF MARINE CORPS

The mission of the Marine Corps as this Nation's force-in-readiness for power projection influences our structure and active/reserve mix. Charged with maintaining the assets to mobilize rapidly, the Marine Reserve augments and reinforces the three active Marine amphibious forces to bring them to their full strength for contingency.

The Reserve also provides the option of expanding the Corps by fielding an additional division, wing, and force service support group. Our Reserves represent one-fourth of the structure and one-third of the manpower in the total Marine force.

To execute these roles of employment, timely and effective training fully integrated with the active force is essential. Training and interoperability mandates that the same generation of equipment used by the active force be available to the Reserve. Congressional support of our budget request of $366.1 million in fiscal year 1988 and $387.8 million in fiscal year 1989 is vital to our continued development as a full contributor to the total force.

MANPOWER, EQUIPMENT, AND TRAINING

I would like to comment briefly about the three areas in which we use this funding: Manpower, equipment, and training. In the manpower area, it seems to me the focus is on the end strength and on the need that we have to maintain not only the personnel goal this year of 42.8 thousand but also to insure that we are able to increase this and maintain a dynamic status within our Reserve program.

Second is the full-time support element. The Marine Corps is unique in the investment that it places in its Reserve force. Over 5,000 of our active duty Marines are assigned as inspector-instructors who will work with our Reserve component. We have a very small number, approximately 1,500, full-time support marines. These are reservists on extended active duty.

In order to maximize the capability of our Reserve, we need to steadily increase that FTS number because of the force structure changes which are occurring within the Reserve program. We are adding aviation units, we are adding lightly armored vehicle units, and we are increasing our structure in a number of ways which requires a very small increase, 270 full-time support individuals.

MAPOWER

In the area of manpower, I would also like to emphasize the strength of our Individual Ready Reserve. In the recall process that is now occurring, in the first quarter the average was 79.9 percent of our Individual Ready Reservists who answered the call, came to the muster, and we have evaluated them and upgraded our data on them.

RECRUITING AND RETENTION

A fourth item with regard to personnel is the matter of the GI Bill. There is no question that this is of considerable help to us in our recruiting and retention. We notice a 78-percent increase in a number of reservists who are now signing up for the full 6-year period in order to participate in the GI Bill.

By the way, 87 percent of those in the GI Bill are full-time college students. I think that is another matter of the way in which the Reserve contributes to the benefit of our society.

EQUIPMENT MODERNIZATION

In the matter of equipment, I would emphasize, as I mentioned earlier, the modernization activities which occur. In this decade, every weapon in the infantry battalion will be improved or updated from the 1911A–1 45 caliber pistol up through the M–198 Howitzer such as we have in the Spokane, WA, unit, by the way. All of our trucks, engineer equipment and all of our other equipment are being upgraded considerably.

Our greatest problem in equipment is in maintaining sufficient assets. Of course, in the Marine Corps we maintain the philosophy of the first to fight is the first equipped. We must be sure that we have sufficient equipment before the time of mobilization as well.

Currently, we have 87 percent of the equipment in training allowance for our Reserve units. By the end of fiscal year 1990 we expect to be within 98 percent of the total dollar value authorized which is based on current equipment requirements.

AIRCRAFT

Finally, in equipment I'll mention aircraft. The F/A–18 will be coming into the Reserve shortly. This will modernize our fighter attack capability. We are looking to get the CH–53 Echo helicopter for the heavy-lift capability, and, of course, we are modernizing the A–4M aircraft as well. The C–130 program is under way, and we look to complete the buys for that program in order to have a squadron both at Stewart Air Force Base as well as at Glenview Naval Air Station.

TRAINING

Finally in the area of training, I would emphasize that the emphasis in the Marine Corps is on integrated Marine air-ground training with both combined and joint training activities as well. A sizable number of our Marine reservists train overseas, and we have a considerable amount of training activity in such places as Fort McCrory, WI, which is indeed an excellent training facility for us.

I would emphasize one of my greatest concerns as the Deputy Chief of Staff for Reserve Affairs is the age and condition of our training centers and facilities. The Military Construction, Naval Reserve under which the Marine Corps is funded has an $845 million backlog. A percentage of that is Marine Corps, $173 million.

I think there is a considerable morale factor and effect upon our reservists when they train in facilities which are substandard. We are doing everything to improve and remedy that situation.

SIMULATORS

Finally, I would say that the simulators will be of tremendous assistance to us in our training program.

So these increases for manpower, training, equipment, and facilities will make substantial improvements in our warfighting capabilities, will be cost effective, and will permit us to accomplish our objective and realize the fullest potential of the Marine Corps and its Reserve.

Thank you for permitting me to share these thoughts with you, and I will be pleased to answer any questions or any comments.

[The prepared statement of General Salesses follows:]

PREPARED STATEMENT OF MAJ. GEN. J. J. SALESSES

Deputy Chief of Staff for Reserve Affairs

Mr. Chairman, distinquished members of the Committee, it is a privilege to report to you on the current posture and future programs of the Marine Corps Reserve.

I am pleased to report that the Marine Corps Reserve has achieved its highest level of military capability and combat readiness. Your support of our personnel and equipment programs has resulted in significant quantitative and qualitative improvements.

Examples of this improved capability include:

- Participation of over 20,000 reservists in 16 major exercises within the continental United States and abroad.
- Modernization of aircraft in the Reserve inventory.
- Achievement of 100 percent of our nonprior service recruiting goals with over 96 percent high school graduates.
- Achievement of 98 percent of the dollar value and 94 percent of all required major equipment items by the end of FY90.

Significantly more important than these qualitative indicators, is the growing recognition of the roles and utility of the Reserve. With guidance from the Secretary of the Navy, we have conducted a review of the purpose and direction of the Marine Corps Reserve. The Commandant has approved a balanced program designed to achieve combat readiness levels for the Reserve component comparable to the Active Force, and we have developed a comprehensive framework to guide us in arriving at these objectives. This framework, our "Roadmap" for the future, is supported by three fundamental strategies:

- Recruit, train, and retain quality personnel.
- Maintain the modernization effort to provide quality equipment.
- Improve Active and Reserve integration.

The Marine Corps is committed to this program for the future of the Reserve. It clearly recognizes the Reserve component as a critical partner in the military capability of our Corps. Maximizing the Reserve contribution, however, requires continued support to meet the challenges of tomorrow.

RESERVE CONTRIBUTIONS TO THE TOTAL FORCE

The mission of the Marine Corps as this Nation's force-in-readiness for power projection influences our structure and Active/Reserve component mix. Charged with maintaining the assets to mobilize rapidly, the Marine Corps Reserve augments and reinforces the three active Marine Amphibious Forces to bring them to their full strength for contingencies. The Reserve also provides the option of expanding the Corps by fielding an additional division, aircraft wing, and force service support group.

U.S. Marine Corps Reserve roles upon mobilization are:

- Augment the Active Force in order to field three active Marine Amphibious Forces at full wartime strength.
- Reinforce the active Marine Amphibious Forces with Selected Marine Corps Reserve units to provide additional desired capabilities.
- Provide the capability to field a Marine Amphibious Brigade with reduced aviation and limited combat service support capabilities.

- If augmentation, reinforcement, and/or providing a Marine Amphibious Brigade is ordered, the Reserve will provide a nucleus of residual units for reconstituting a division, aircraft wing, and force service support group.

- If augmentation, reinforcement, and/or providing a Marine Amphibicus Brigade is not ordered, the Reserve can provide a division, aircraft wing, and force service support group.

Our program for the future does not anticipate any changes to the aforementioned roles. As peacetime Active Force ceilings cause pressure for the transfer of functions to the Reserve, our force structure will be shaped to accommodate the developing needs of the Active Force. Capabilities absent or insufficient in the Active Force will be emphasized and supported by the Reserve component in the midrange period.

To execute the employment roles, timely and effective training, fully integrated with the Active Force, is essential. Training and interoperability mandate the same generation equipment used by the Active Force be available to the Reserve. Congressional support of budgetary proposals will permit us to accomplish this objective and realize the fullest potential of the Marine Corps Reserve.

The Active component of the Marine Corps provides the national defense effort an extremely capable and flexible resource based upon three active Marine Amphibious Forces. This capability is contingent on the ability of the Navy-Marine Corps team to forward deploy Marine Air-Ground Task Forces. Requirements for Active Force manpower are driven, in part, by peacetime commitments as well as the anticipation of contingency response. The Reserve complements the Active component, and, considered as a Total Force, 25 percent of the Marine Corps' force structure and 33 percent of the trained manpower available to the Marine Corps is in the Reserve.

The Individual Ready Reserve provides a substantial portion of this manpower. The Manpower Mobilization Assignment System ensures the combat skills and experience of Individual Ready Reservists can be rapidly assimilated into the force as required. The Selected Marine Corps Reserve contributes trained units which are organized into the 4th Marine Division, 4th Marine Aircraft Wing, and 4th Force Service Support Group. These organizations represent substantial

The following chart depicts the major contributions made by the Reserve to the Total Force.

MARINE CORPS RESERVE CONTRIBUTIONS TO THE TOTAL MARINE CORPS

Unit Types 1	Percent of Total Marine Corps
Civil Affairs Groups	100
Salvage Platoons	100
Force Reconnaissance Units	50
Air/Naval Gunfire Liaison Companies (ANGLICO)	50
Force Service Support Group Military Police	40
Tank Battalions	40
Beach and Port Companies	40
Division Reconnaissance Companies	35
Light Anti-Aircraft Missile Battalions (LAAM)	33
Heavy Artillery Batteries	33
Infantry Battalions	25
Marines Air Control Groups (MACG)	25
Marine Wing Support Groups (MWSG) 2	25
Bulk Fuel Companies	25
Force Service Support Groups (FSSG)	25
Forward Area Air Defense Batteries (FAAD)	25

Aircraft Types 3

Light Attack Aircraft (VMA)	30
Observation Aircraft (VMO)	29
Aerial Refueling Aircraft (VMGR)	23
Electonic Warfare Aircraft (VMAQ)	21
Fighter Aircraft (VMF)	15
Helicopters (HMI,HMA, HMM, HMH)	14

NOTES:
1. Percentages determined by counting like type units.
2. Reserve wing support units being reorganized into Marine Wing Support Squadrons.
3. Percentages determined by counting primary authorized aircraft.

Data as of September 30, 1986.

FORCE STRUCTURE

SELECTED MARINE CORPS RESERVE

The structure of the Selected Marine Corps Reserve is the result of a deliberate planning process. As previously mentioned, the Selected Marine Corps Reserve is capable of providing trained units to the Active Force to increase warfighting capability. Similarity of Reserve and Active Force structure greatly enhances and streamlines the process of integrating Reserve component units with the Active Force upon mobilization. Overall combat readiness is enhanced and training costs are minimized by retaining the similarity of structure.

Significant improvements in the quality of manpower have increased the readiness of the Selected Marine Corps Reserve. The overall educational levels for FY86 accessions were high, with 98.3 percent being high school graduates. Recruiting efforts for our prior service reservists are designed to match military skills and experience to billet requirements. This effort, coupled with special skill training programs, resulted in an improved skill match for FY86 of 75.9 percent compared with 71.4 percent for FY85. As a result of this emphasis, we are improving our readiness levels while optimizing our training dollars.

Budgeted and approved Selected Marine Corps Reserve manpower increases during FY86 resulted in a final end strength of 41,582. The FY87 plan calls for a goal of 42,800. Planned increases will support required structural adjustments in the Reserve community.

Our manpower plan over the next 4 years calls for a modest growth which will average less than 1,000 per year. This projected growth will allow the Marine Corps Reserve to achieve the goal of full strength by 1990. We expect to realize our Reserve manpower objective while retaining our quality standards for personnel. The increasing reliance on the Reserve, reflected in missions in support of the Active Force, demands support; and this support begins with adequate manning levels.

GROUND STRUCTURE

Our Total Force planning process has caused structural changes within the 4th Marine Division and 4th Force Service Support Group. The introduction of the M198 155mm towed howitzers began during FY85 and will be completed during FY89. Reorganization of the artillery regiment to accommodate the M198 and provide optimum support for infantry units is programmed for FY88/89. Further enhancement of our artillery capability will be realized when the Reserve receives the AN/TPQ-36 counter-fire radar in FY87. The ability of the 4th Marine Division to engage and destroy mortar and artillery assets of an opponent will improve appreciably when this change is completed.

During FY87/FY88, the Medical Logistics Company of the 4th Supply Battalion, the remainder of the 4th Medical Battalion, and the 4th Dental Battalion will be activated. These activations are critical additions to the 4th Force Service Support Group and will significantly enhance the Selected Marine Corps Reserve combat service support warfighting capability.

A light armored vehicle battalion will be activated in FY87/FY88. The battalion, consisting of 900 Marines and 110 vehicles, will be located in four states (California, Maryland, Utah, and Virginia). The light armored vehicle battalion represents a sizable increase in the firepower and maneuverability of the Reserve. Four tube-launched, optically-tracked, wire-guided missile platoons are also scheduled for activation commencing FY88. These will double the anti-armor capability of the 4th Marine Division. The capacities of the 4th Marine Division will be measurably improved by these programs.

AVIATION STRUCTURE

The 4th Marine Aircraft Wing will also undergo major structural changes as we move into the 1990's. The addition of one AH-1J attack helicopter squadron and the expansion to two KC-130 refueler squadrons are two major changes which increase Reserve combat capabilities.

The standup of a KFIR adversary squadron will enhance and promote the readiness of the Total Force. Thirteen aircraft have been leased from the Israeli Government and are being based this year at Marine Corps Air Station, Yuma, Arizona. Designated F-21A, the KFIR aircraft will be flown by active duty Marines and reservists. The squadron will provide enhanced training to Active and Reserve component aviation units using tactics employed by potential adversaries. Training for aircrew members began in the first quarter of FY87 at NAS Oceana, MCAS Yuma, and in Israel. The aircraft are projected to arrive in the third quarter of FY87.

FULL-TIME SUPPORT

A critical component of the manpower picture for the Selected Marine Corps Reserve is the Full-Time Support Program. This non-career program contributes to mobilization readiness and the accomplishment of the Reserve mission in two major ways. First, it brings highly qualified Marine reservists on active duty for periods of 1 to 4 years to support the Marine Corps Reserve. Their knowledge of Reserve programs assists substantially in effective administration and execution of Reserve programs. Secondly, the working experience and knowledge gathered by the reservists during their tours of active duty significantly contribute to the readiness of the Selected Marine Corps Reserve units to which they return.

Full-Time Support Marines, referred to as Active Guard/Reserve in some other Services, assist in the areas of recruiting, instructing, training, and administering the Marine Corps Reserve in accordance with 10 U.S.C. 672/678 (d) to promote improved management and a better combat capability in the Marine Corps Reserve.

The Marine Corps Reserve Full-Time Support Program complements the over 5,000 Active component Marines currently providing full-time manning support of the Selected Marine Corps Reserve. Since the Marine Corps does not utilize the Military Technician Program, and Active component end strength is a finite number, the Marine Corps Reserve could not meet the demands expected in the future without the timely and effective support provided by the Full-Time Support Program.

Programmed growth to over 2,400 by 1990 will be commensurate with the support required for the enhancements of our Reserve Force. The FY86 year end Marine Corps Reserve support personnel strengths are indicated in the table below:

MARINE CORPS RESERVE SUPPORT PERSONNEL

Active Component	5,180
FTS (Active Guard/Reserve/Training and Administration of Reserve Equivalent)	1,478
Civil Service	261
Military Technician	0
Total FTS	6,919

INDIVIDUAL READY RESERVE

The recent increase of the initial military service obligation to 8 years will have an important effect on the Individual Ready Reserve. This population is expected to increase from approximately 48,000 in FY85 to more than 75,000 by 1994. The Individual Ready Reserve is the primary source of trained individuals for Active and Reserve component units in the event of mobilization. Management and training of personnel resources are a concern of current and future planning efforts, and we have programs in place and developing to ensure appropriate training is received by our Individual Ready Reservists. A mobilization assignment system and a preassignment program are in place and continually refined during the conduct of regularly scheduled mobilization exercises. These programs will promote rapid assimilation of this asset. The Individual Ready Reserve provides an invaluable pretrained manpower pool at minimum cost.

SELECTED AUGMENTATION UNITS

Our newest structure initiative involves the establishment of Selected Augmentation Units. The Selected Augmentation Unit Program, which began in Naval aviation squadrons, complements established augmentation/reinforcement role of the Marine Corps Reserve. The Selected Augmentation Program is designed to identify and match residual Reserve units with manpower-deficient active units. These residual units could form the nucleus for reconstituting the Reserve division, wing, and force service support group. As an employment option, however, a portion of the manpower from these units can be used to fill unmanned active unit structure. The Selected Augmentation Unit Program reservists will conduct their annual training duty with the active unit with which they would mobilize.

The Marine Corps conducted a pilot Selcted Augmentation Unit Program this summer with Reserve combat service support units augmenting undermanned counterparts of the 2d Force Service Support Group at Camp Lejeune, North Carolina. Field reports were favorable, and we will expand the program in FY87. The Selected Augmentation Unit Program enhances both combat readiness and Active/Reserve component integration. When fully implemented, it will be another credible source of support for the Active component while simultaneously providing realistic training for our Reserve. Selected augmentation units exemplify the confidence placed in the Marine Corps Reserve and our commitment to the Total Force policy.

MODERNIZATION

Aircraft modernization plans put aircraft released from the Active Force immediately into the Marine Corps Reserve inventory. This does not, however, satisfy long-term requirements. While these aircraft remain capable, our aviation plans require continued congressional support to field modern aircraft to our Reserve.

Aircraft such as the F-4S, A-4M, CH-46E, UH-1N, AH-1J, and KC-130F are being flown by both Active and Reserve components, providing a substantial degree of commonality. This allows the smooth integration of Reserve component squadrons into Active component aircraft groups in their mobilization role. The Reserve has converted to an all F-4S fighter force, and plans call for an all A-4M attack force by FY89. Our goal is to upgrade with the F/A-18 and have an all F/A-18 reserve fighter/attack force with transition beginning in 1989, 2 years earlier than we reported to you last year.

Increased requirements for rapid response and integration with the Active Force underscore the need for commonality with the Active Force units. In the aviation arena, commonality should also result in increased efficiencies in training costs, spare parts, and aircraft maintenance.

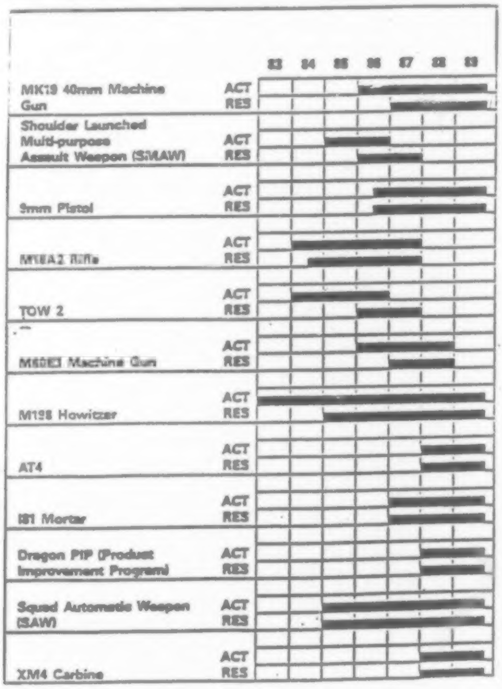
We will continue to fly the CH-53A in the forseeable future, but efforts will be made to modernize these aircraft if an opportunity presents itself. CH-46E squadrons will continue to provide medium-lift capabilities for the Reserve until FY96/FY97, when they will transition to the MV-22A, Osprey.

The Reserve currently has one aerial refueler squadron of KC-130's partially configured with the newest KC-130T. Ten aircraft have been delivered and are currently based at Naval Air Station, Glenview, Illinois, with the older KC-130F's. Two aircraft are scheduled for FY87 delivery. The standup of an additional squadron at Stewart International Airport, New York, is moving ahead in the areas of programmed personnel, aircrew training, flight-hour funding, and facility construction. Scarce MILCON funding will delay activation of the squadron until the first quarter of FY88.

EQUIPMENT

Modern combat equipment is essential to readiness. Acquisition profiles have, for several years, provided concurrent fielding of equipment to the Active and Reserve components. In the concept referred to as the single acquisition objective, the total requirement for the entire U.S. Marine Corps is determined and procured.

While historically the Marine Corps has included the Reserve in developing acquisition objectives, equipment fielding to Reserve component units has usually lagged behind the Active component due to funding constraints. Funding levels, however, during the past 5 years, have allowed concurrent procurement of most equipment items. Examples of concurrent fielding plans, depicted on the following chart, demonstrate the Marine Corps' commitment to, and the beneficial effect of, the single acquisition objective concept.



The Marine Corps' goals of procuring standard combat equipment for our Reserve are being met. Today, over 87 percent of the equipment required for training is on-hand. Additional equipment required for mobilization is held at the Marine Corps Logistics Bases. Current procurement programs will eliminate all but 1.7 percent of the equipment shortages by the end of FY90.

Marine Corps procurement funds in the amount of $57.7 million have been allocated for the Reserve component in FY87. The FY88 request for $41.8 million represents 2.9 percent of the FY88 Procurement, Marine Corps appropriation, and includes such items as the Position Azimuth Determining System, 9mm Pistol, 5.56mm carbine, and a variety of tractors, forklifts, and cranes. Distribution of funds allocated to Reserve component procurement is displayed below by commodity area:

	(Shown in $ Million)			
	FY86	FY87	FY88	FY89
Weapons and Tracked Combat Vehicles	29.5	22.8	3.6	6.3
Communication/Electronics Equipment	20.4	1.7	8.5	5.6
Support Vehicles	62.2	17.3	0.2	.9
Engineer Equipment	19.8	14.9	28.5	13.9
Spares and Repair Parts	3.5	1.0	1.0	1.0
Total	135.4	57.7	41.8	27.7

FACILITIES

Another aspect of our overall program includes the upgrade/replacement of many Reserve component training facilities. The Marine Corps Reserve presently occupies 186 reserve centers located in 46 states, the District of Columbia, and Puerto Rico. Forty-eight reserve centers are managed or owned by the Marine Corps. The remainder are occupied jointly with other Services.

Replacement, modernization, and expansion of Navy and Marine Corps Reserve facilities are funded through the Military Construction, Naval Reserve appropriation. Funding levels for the previous 5 years averaged $40 million. An average of $12.6 million of the Military Construction, Naval Reserve funds have been provided annually to Marine Corps Reserve projects. During this period, the construction backlog increased from $290 million in FY82 to $845 million in FY87. Inadequate funding levels, block obsolescence of World War II era facilities, and new or expanded Reserve component missions are factors which led to this marked increase in need.

The current FY88 through FY92 Military Construction, Naval Reserve program contains more than $366.8 million for construction of Navy and Marine Corps Reserve facilities. Replacement, modernization, or expansion of 129 reserve facilites will be realized if this program is supported in the budgetary cycle. The table below provides a synopsis of what is projected through the FYDP.

PROGRAMMED MILITARY CONSTRUCTION, NAVAL RESERVE FUNDING LEVELS

FY	($ Million)
88	73.7
89	56.9
90	68.8
91	79.8
92	87.6
Total	366.8

Our expanding role in the Total Force requires support in this vital area. Facilities have a direct impact on recruiting and retention of quality people in addition to supporting unit training and equipment maintenance requirements. Force structure and mission changes are often difficult to implement without appropriate facilities.

TRAINING AND READINESS

Success on the modern battlefield requires the integration of manpower and equipment through an effective and innovative training program. Exercises and other training programs, emphasizing Active/Reserve component integration, are designed to provide a highly trained Reserve manpower resource from which to draw Selected Marine Corps Reserve units or individual Marines in the event of mobilization. Programs aimed at professional development and military occupational specialty qualification are integral parts of the equation and imperative to successful warfighting. Underscoring our emphasis on Active/Reserve component training integration and unit performance within a Marine Air-Ground Task Force, the Reserve 2d Marine Amphibious Brigade will participate in an exercise under the operational control of the Commanding General, Fleet Marine Force, Atlantic during 1987. This will be the first exercise of this magnitude to be planned and executed under the control of an Active Force commander.

TRAINING FOR INDIVIDUALS

Training of individuals in the Individual Ready Reserve is accomplished through two programs. First, the Exercise Support Program provides small detachments and individuals the opportunity to participate in major exercises under the cognizance of Fleet Marine Force, Atlantic and Fleet Marine Force, Pacific. For instance, during 1986, 15 reservists joined the 9th Marine Amphibious Brigade staff and participated in Exercise Yama Sakura conducted in Hokkaido, Japan, in conjunction with training for the Japanese Self-Defense Force. Also, 120 individual reservists participated in Exercise Team Spirit by deploying to Korea as part of III Marine Amphibious Force.

The second means of training the Individual Ready Reservist is through the Reserve Counterpart Training Program, which is designed to provide Reserve officers and enlisted Marines the opportunity to train with active duty counterparts. Technical skill enhancement and proficiency in occupational skills, external to an exercise support environment, are the benefits of this program.

The anticipated increase of the Individual Ready Reserve by the end of FY94 to more than 75,000 in response to the 8-year military service obligation presents a significant challenge to ensure MOS proficiency. To overcome this problem, the Reserve Counterpart Training Program will be increasingly used as a training vehicle. Funding has been earmarked to conduct skill refresher training commencing in FY88. We are implementing a pilot program in FY87 for expansion of Reserve Counterpart Training, and expect to increase the program substantially in FY88.

Another facet in our training program for reservists is attendance at professional schools. These schools are similar to those offered to the Active component, but tailored to the time available to reservists. They attend reserve courses at the Marine Corps Amphibious Warfare School, the Marine Corps Command and Staff College, the Landing Force Training Commands, the Naval War College, and the U.S. Air Force Air War College. Candidates from the grades of warrant officer to colonel are selected by boards to ensure the most qualified individuals attend. The program has expanded to over 590 officers and 480 staff noncommissioned officers in FY87. Present levels of professional education will be maintained in FY88.

Unit Training

Exercise participation affords reservists the same opportunities as active duty Marines to develop and maintain skills in command and control, fire support coordination, amphibious planning, and fire and maneuver. An active cycle of training is maintained which includes combined arms exercises, cold weather and mountain warfare training, and amphibious assaults. As previously mentioned, unit participation in major exercises abroad and within the continental U.S. provided training to approximately 20,000 reservists during FY86. The projected exercises for FY87 are depicted in the next chart:

FY87

EXERCISE	DATES	LOCATION	MAJOR UNIT	# PERSONNEL
Joint/Combined*				
Cold Winter	2d Qtr	North Nato	2/24, HML-767 (Det)	650
Dispay Determination-86	Oct	Mediterranean	4th MAW Dets	50
Bold Guard	Oct	Germany HMH-722	3/25, HMM-774, HML-767	1500
Team Spirit	2d Qtr	Korea IRR (EX SPT)	3d CAG (-)	145
Joint				
Solid Shield	Apr-May	East Coast	3d/4th ANGLICO (Dets) 3d/4th CAG, MAG-49 (Det)	80
Logistics Exercise 87	Jul	Virginia	4th FSSG (Det)	80
Wintex Cimex	Mar	CONUS	4th Division-Wing Team HQ	250
Power Sweep	Oct-Nov	CONUS	4th Division-Wing Team HQ	250

* Various Air Naval Gunfire Liaison Companies (ANGLICO's), Civil Affairs Groups (CAG's), and Reconnaissance Units will send Detachments to Dragon Hammer (MED), Corba Gold (WESTPAC), Valiant Blitz (WESTPAC), and Bright Star (East Med), totaling about 80 Marines.

SMCR/Integrated Major Exercises

EXERCISE	DATES	LOCATION	MAJOR UNIT	# PERSONNEL
Solar Flare	Jul-Aug	North Carolina	2d MAB	5800
Alpine Warrior	Feb-Mar	Wisconsin	8th TK Bn HML-767 (Det)	580
Pinnacle Control	May-Jun	Utah	MAG-48, CSSE **	1300
Combined Arms Exercise 7-87	Jun	California	MAG-46, CSSE	3530
Combined Arms Exercise 8-87	Jul	California	MAG-46, CSSE	3260
Marine Corps Combat Readiness Evaluation System 1-87	Aug	Minnesota	1/25, CSSE	750
Marine Corps Combat Readiness Evaluation System 2-87	Aug	Minnesota	3/24	750
Cold Weather Trng	Nov-Dec Jan-Feb	California Minnesota	1/25, CSSE 4th FSSG (-)	600 650
Fire Exercise 87	Jul	Texas	14th Mar	1400
1st MAB Deployment	Jun	Hawaii	2/23, CSSE	2340

** CSSE - Combat Service Support Element (CSSE) provided by 4th Force Service Support Group

Training and Innovation

The Marine Corps Reserve continues to seek methods for applying emerging technologies in simulators and computer-aided instructional systems to enhance our training and combat readiness. The unique demands placed upon our Reserve units to maintain military skills in compressed time periods, distant from live-firing ranges, have led to the research and use of state-of-the-art devices and ranges. Given the constraints under which the geographically dispersed reservists must operate, automated learning systems provide an optimum level of cost-effective training. Congressional support has helped us make strides in acquiring these systems.

The use of devices and simulators for reserve training falls into four general categories: marksmanship/gunnery, combat environment, command and control, and maintenance training. The systems are used for both individuals and units. Some are employed for Reserve component use, and others are part of the Active component facilities used by the Reserve during drills or annual training duty.

Ranges and range devices under development or already fielded include the Multipurpose Range Complex, Small Arms Remote Targets, Remote Engagement Target System, Electronic Target System, and Training Range Analysis System. Marksmanship/gunnery devices and simulators include moving target simulators, the Precision Gunnery Training System, and the light armored vehicle gunnery trainer. The Marine Corps will continue to exploit innovative training opportunities that provide quality training and skill qualification programs tailored to the Reserve's needs. We are pursuing portable systems and military occupational skill instructional vehicles to enhance on-site skill qualification training for reservists during weekend drills. Your support has been instrumental in our progress to date.

TRAINING EFFECTIVENESS

One feature of the exercise schedule is reserve unit participation in the Marine Corps Combat Readiness Evaluation System. Reserve units are tested to evaluate their readiness for combat operations with the same standards used to evaluate Active component units. Results are used by unit commanders to correct unit training deficiencies. A comparison of results from 1980 through 1986 provides insight into the readiness profiles of our Reserve community measured by this rigorous testing system.

MARINE CORPS COMBAT READINESS EVALUATION SYSTEM RESULTS

FY	UNITS EVALUATED	% REPORTING COMBAT READY
80	13	69
81	13	54
82	29	90
83	31	90
84	13	100
85	49	100
86	14*	100

* The decrease in units evaluated is the result of increased Active/Reserve component exercise integration and has required the 4th Marine Division to move from a 3- to 5-year Marine Corps Combat Readiness Evaluation System cycle.

In addition to tactical proficiency in their warfighting skills, the Reserve must successfully execute the mechanics of mobilization. This readiness factor is assessed during the conduct of mobilization exercises by the Joint Chiefs of Staff.

Selected Marine Corps Reserve units complement mobilization exercises with Mobilization Operational Readiness Deployment Tests. These no-notice tests are designed to provide commanders an assessment of unit mobilization preparedness. As reflected in the table below, the Marine Corps Reserve continues to do well in this area. The slight reduction in recall readiness figures is the result of increased emphasis on exacting standards.

MOBILIZATION OPERATIONAL READINESS DEPLOYMENT TEST RESULTS

FY	UNITS TESTED	% READY
80	133	96
81	95	96
82	131	95
83	113	93
84	95	94
85	92	91
86	111	91

BUDGET

The FY88/FY89 Marine Corps Reserve budget request of $366.1/$387.8 million will support enhancement initiatives discussed above and a Selected Marine Corps Reserve end strength of 43,700/44,500 (42,344/43,040 average strength). This funding represents 4.0 percent/4.1 percent of the overall Marine Corps budget. Listed below is a comparison of FY87 and FY88/89 budgets.

FUNDING COMPARISON - FY87/FY88/FY89

RESERVE APPROPRIATION	FY87	FY88	FY89
Reserve Personnel, Marine Corps (RPMC)	$278.3M	$294.7M	$302.6M
Operation & Maintenance, Marine Corps Reserve (O&MMCR)	$ 64.2M	$ 71.4M	$ 85.2M
Total	$342.5M	$366.1M	$387.8M

The FY88/FY89 RPMC budget provides $182/$185 million for pay and allowances, retired pay accrual, subsistence, clothing, and operational travel for units and individuals during drills, annual training, and initial active duty for training. The other $113/$117 million is for special tour requirements, mobilization training, the Full-Time Support Program, Incentives Program, Platoon Leaders Course, and the Junior Reserve Officers Training Corps. The Reserve Personnel, Marine Corps increase of $16.4 million in FY88 over FY87 and $7.9 million in FY89 over FY88 is necessitated by a planned end strength increase of 900 in FY88 and 800 in FY89 within the Selected Marine Corps Reserve and Full-Time Support programs. This increase will support the structure enhancements previously discussed and a DOD-directed 1-day recall of the Individual Ready Reserve for annual screening.

The FY88/FY89 O&MMCR request of $71.4/85.2 million provides funds for the day-to-day costs of supporting our units. The training of Selected Marine Corps Reserve units is directly supported by $31.4/$44.6 million. Included are the costs of "expense items" of equip-ment, consumables, vehicle and airlift support, transportation of Marines and material, and unit maintenance of equipment. Depot-level maintenance of major end items of equipment is supported with $1.9/$2.0 million. The FY88/FY89 request also provides $38.1/38.6 million for the operation and maintenance of training facilities and administrative support of individual reservists, recruiting activities, and headquarters support.

Funding levels described for FY88/FY89 are vital to our continued development as a full contributor to the Total Force. The modest increase in funds for manpower, training, equipment, and facilities will make substantial improvements in our warfighting capabilities and is considered cost effective under our current fiscal conditions.

CONCLUSION

In the final analysis, the value of the Marine Corps Reserve lies in its preparedness. Your support would not be justified if the Marine Corps Reserve did not make a concrete contribution to our overall warfighting capability. All indicators show great progress has been made. There is truth to the axiom, "quality begets quality." Your Marines today are trained, equipped, and prepared to respond. They are capable and, with your continued support, will remain a sound investment in the future.

I believe we are on track with an affordable and executable program that maximizes the Reserve contribution to the Nation's defense. Dollar-for-dollar, the Marine Corps Reserve delivers. Your support in the past has reaped dividends that will continue to appreciate in value. As the Marine Corps Reserve grows in size and scope, adequate support in the form of equipment, training, and facilities must be provided.

I will conclude by offering some observations about the people that make up the Marine Corps Reserve. As I travel throughout the country, I am continually impressed by the level of commitment from your reservists. Most of them are young people, with families, and many travel some distance from their homes to participate in drill sessions or exercises. They make sacrifices to participate in the Reserve, and they continue to deliver when called upon. Their patriotism, professionalism, and sacrifice on behalf our Nation deserve your continued support.

QUESTIONING BY SENATOR LEAHY

Chairman STENNIS. We thank you very much for your testimony, and the questions may come later.

I wish to call on Maj. Gen. Roger P. Scheer, Chief, Air Force Reserve. All right, General, we recognize you, and Senator Leahy will then ask questions.

If you are in a crowded position for time, we can call on you now.

Senator LEAHY. Well, Mr. Chairman, unfortunately I do have to go off to another meeting, and I have a couple of very brief questions.

Chairman STENNIS. Well, I am sure that will be understood if we could let him go now.

Senator COCHRAN. Mr. Chairman, could I ask that Senator D'Amato's questions be submitted for the record?

Chairman STENNIS. Without objection, the questions of Senator D'Amato from New York will be admitted to the record for the attention of the witnesses.

Chairman STENNIS. All right, Senator, you will proceed, please.

Senator LEAHY. Thank you, Mr. Chairman. As the Chairman knows, I am a very strong supporter of both the Guard and the Reserves, partly because I have seen how well they do in my own State of Vermont. In a little State of a half million people, we have always had perhaps more people trying to be in either the Guard or the Reserve than we have had slots for. I think they have acquitted themselves very well nationwide as they have gone around in various competitions and other things.

I know, General Conaway, you were up in Vermont, or we were up there together actually, last year, and I know how much the Air Guard was encouraged by your visit.

C-12J TRANSPORT AIRCRAFT IN VERMONT

Mr. Chairman, I have a question for General Temple. At the risk of sounding just a bit parochial, General, do you agree that the Vermont Air National Guard has a valid requirement for the C–12J or equivalent transport aircraft to support its F–16 squadron in its training and wartime role?

General TEMPLE. Sir, I am prepared to reply to your question, but it might be more appropriate for my associate on the right, General Conaway, who has a parochial interest in the Air Guard which exceeds even mine, might very well respond to that one.

General CONAWAY. Thank you, sir.

Senator Leahy, there is a requirement, and it has greatly increased in priority since we announced the Vermont Air National Guard had converted to F–16s, and is going to the air defense role next fiscal year because the Air Force has had to draw down budgetarily some of their air defense units. With that, they will probably pick up a detached alert which they will be responsible for in another State, and as a result we will have a high priority need for one.

We are trying to work out a C-12 type airplane or something like that. The Air Force is out for competition right now to buy six or eight more. We do need, as I mentioned earlier in the hearing, up to six more to continue retiring our C-131s and put them in States like Vermont and Virginia that do not have operational support aircraft.

Senator LEAHY. You mentioned Virginia. I think Vermont and Virginia are the only States with tactical fighter squadrons that do not have the necessary transport aircraft. My concern is that when we move the Vermont Guard around the country for training or operational missions with their F-16 squadron—and naturally I am delighted to see them with F-16s—we send all the support personnel and others on commercial flights, which in Vermont is not the easiest thing to do sometimes. They could lag by a day or so just getting around.

General CONAWAY. That is correct.

Senator LEAHY. Why are Vermont and Virginia excluded from getting needed transport aircraft, whether it is a C-12J or something of equivalent nature. Why are they excluded in this budget from getting them?

General CONAWAY. Well, none of them have been included in the President's budget for the last couple of years. Congress has purchased some support aircraft which has helped our air defense units with their detached alerts. That is how we have been able to do this.

There have always in the past, sir, been fallout aircraft from the active Air Force which come down to the Air National Guard for operational support airlift in States that do not have, for example, C-130 units. The States without C-130s have had one to support their missions and deployments, particularly with air defense units because they have to move crews and maintenance personnel several hundred miles back and forth as they pull an active Air Force day-to-day mission.

When Air Force stopped buying those kinds of aircraft, the system kind of dried up and left us with the C-131, which is about 30-some years old. We are phasing those out, with the help of Congress and the Air Force. We have had a game plan to phase them out with a few C-130As and the rest with a cost effective operational support aircraft that thus far has been six C-12Js and six C-12Fs. We are up for competition right now for 10 more aircraft for early next year which will still leave us six short from being finished.

Senator LEAHY. Suppose I was able to convince this Committee to include a direction in the appropriations bill that you provide Vermont with a C-12J or equivalent in the pending defense budget. Could that be done within the pending defense budget?

General CONAWAY. I would hope that it could. It is needed, and we are trying to work it ourselves to help them. Your help is certainly appreciated.

Senator LEAHY. Let me continue to work with you on it because we really do need it.

As I say, Mr. Chairman, I apologize for being quite so parochial on this particular issue, and I have a whole series of questions I want to submit for the record if I might.

It is just with the F–16 now in the Vermont Air National Guard, it is a good news/bad news thing. The good news is they have the F–16, they are well equipped to handle it, and they are doing very well in their training. I have been down a number of times to watch. The bad news, of course, is as their mission expands, they have this one big hole in their ability to move people around to support the mission.

Thank you.

Thank you, Mr. Chairman.

Chairman STENNIS. Thank you, Senator.

Senator Stevens, I will call on you now.

INCREASED PERSONNEL REQUEST

Senator STEVENS. Yes, sir, Mr. Chairman. I am pleased to be back. I may be a little redundant because I obviously missed a considerable portion of the hearing here this morning.

You have a combined request now, as I understand, before the committee for an increase in 33,000 positions for fiscal year 1988. That represents a substantial portion of the increase, that is the overall increase, in the budget for the Guard and Reserve. I support that concept.

If we are forced, as the budget resolution seems to indicate, to reduce the total funding for the Department of Defense for fiscal year 1988, do you have any figures as to the relevant savings of having personnel in Guard and Reserve compared to the active services, any of you?

Mr. SHAW. Senator Stevens, we can get those for you. We just have to cost those out. Your question is what does it cost us to maintain a 33,000 increase in the Guard and Reserve as opposed to the active force? I could provide that for you.

[The information follows:]

SELECTED RESERVE END STRENGTH COSTS

The total requested increase to Selected Reserve end strength in fiscal year 1988, for both part-time and full-time people, is approximately 33,000. The first-year (fiscal year 1988) cost to increase the Guard and Reserve by 4,750 full-time support personnel and 28,214 drilling reservists is estimated at $105 million. This would compare with a cost of $460 million to increase the active forces. It should be pointed out, however, that these strengths are not comparable in workload performance since they compare the cost of only 4,750 Reserve full-time personnel and 28,214 weekend drilling reservists with 33,000 full-time active duty personnel. These estimates are representative of the military personnel appropriation costs only.

MAINTENANCE COST OF ACTIVE AND RESERVE PERSONNEL

Senator STEVENS. I would like to see if we have a ratio for each one of the services. What does it cost to maintain a serviceperson full-time, and what is the cost to keep that person either in the Guard or on Reserve status, which is obviously not full time? There must be a differential there, and we are going to have to make some hard choices.

I note that the Navy had a budget which actually showed a decline over 2 years in their end strength. It is my judgment that we ought to have that here to sustain our desire to maintain the Guard and Reserve funding to the maximum extent possible.

In terms of Guard and Reserve, would you prioritize? I notice that the total end strength increase for active Guard and Reserve is about 4,750, the increase in military technicians would be 1,686, and the Selected Reserve request is 33,000. Would you prioritize between those? Is the 33,000 more important than the other two?

Mr. SHAW. I do not think you can break it out that way, sir, because 75 percent of our total requested increase for both part-time and full-time people, roughly the 33,000, and the 6,000 in the full-time support area, whether it is Active Guard and Reserve [AGR] or technicians, is for new mission and new structure. You cannot bring some of the part-time people on for that structure without bringing the full-time support on to maintain the readiness.

I do not think there is a tradeoff between full-time support and the part-time people. They go hand in glove.

Senator STEVENS. Well, you are obviously going to have to prioritize if we cannot get you the $1.2 billion. Suppose we get you $800 million, two-thirds of it? You will have to decide where you put it. We are going to have to line item here in terms of where to put it.

Mr. SHAW. Yes, sir. If that were the case, we would have to go back and look at the amounts provided, and my guess would be that we would probably reduce both sides of those columns, some on the full-time support and some on the part-time support. I could not predict what the relative cuts would be until I sat down and saw how much money we were dealing with and how this would affect our mission requirements.

Senator STEVENS. I think we ought to have some relative balance. I would hate to make the wrong decision on those line items. There are three separate line items. It does not seem to me that either form of the budget resolution is going to give us the flexibility to fully fund the Guard and Reserve request.

DECLINE IN MILITARY PERSONNEL POOL

One of the things that bothers me is this constant information that we are getting that the pool of young people from which military personnel comes is starting to decline.

The demographics of our society show a decline. It appears that one of the best efforts we could do would be to try and get people who have decided to leave the active duty in our services to stay in either the Guard or Reserve. Are you assured that the program that we have got in place to achieve that goal is as much as we possibly can do?

Mr. SHAW. Yes, sir, I am convinced of that. We have an in-service recruiting program that is quite extensive. If you look at the figures in the budget request, the level of prior-service accessions is about 60 percent. It has remained relatively constant for the last few years. The new accessions that we bring into the Guard and Reserve each year are primarily prior-service personnel. The remaining accessions are non-prior service.

REENLISTMENT BONUS PROGRAM

Senator STEVENS. We started a concept of the GI bill, which everybody knows, but there also was a test, was there not, of some bonuses? Is that still going on?

Mr. SHAW. The bonus program is still in effect. We are still recruiting by using enlistment bonuses as well as re-enlistment bonuses.

Senator STEVENS. I am talking about bonuses for people who are going out of the services from active duty, trying to attract them into coming into either the Guard or the Reserve after they leave the Armed Services.

Mr. SHAW. Yes, sir.

Senator STEVENS. Is that bonus program still in effect?

Mr. SHAW. Yes, sir, and it is dedicated to high-priority units and high-priority skills. It is restricted to those areas, so that we bring people on board from active duty into the Reserve components in high-priority units, as well as individuals who have the skills that we require in those areas where we are shorthanded.

Lieutenant General TEMPLE. Senator Stevens, my associates mentioned to me that it is their impression that that bonus goes out in September of this year.

Senator STEVENS. I had that in the back of my mind, too, that somehow or other that was a temporary thing.

Lieutenant General TEMPLE. Yes.

Senator STEVENS. Can you give us a report on how effective it has been?

Lieutenant General TEMPLE. We will, sir.

RETENTION OF ACTIVE DUTY PERSONNEL IN GUARD AND RESERVE UNITS

Senator STEVENS. Could all of you give us—we are not asking for a long report, or I am not—but just a one-page statement on what you think Congress could do to assist in trying to retain the people who are leaving the active duty in terms of having them join either the Guard or Reserve and maintain their contribution to our total force structure? It seems to me that that is one pool of people that we should do everything we can possibly do to keep them connected, particularly if they are just stepping out. They are highly trained, and their skills are current, and I think recruiting one of those people in the Guard and Reserve is probably a cost savings, as compared to recruiting someone who has never been in the Active Services. The cost of training that person must be considerable compared to the bonuses we would have to pay to attract these young people into the Guard or Reserve.

I would like to have you give us any suggestions that you might. We can talk to the Armed Services Committee, and maybe we can obstruct some of the authorizations and keep them going a little bit longer.

[The information follows:]

METHODS USED IN RETENTION OF SERVICE PERSONNEL

In reference to your request on what the Congress can do to assist in trying to retain the people who are leaving active duty in terms of having them join the Guard or Reserve, we would like your support of the Department's proposed legislation which would extend certain bonus authorities beyond their expiration at the end of this fiscal year. One of the bonus authorities in our request is the affiliation bonus, offered to prior service obligors who choose to join Selected Reserve units. To be eligible, the individual must be an obligated member leaving active duty or a member of the Individual Ready Reserve (IRR) who has not yet completed his or her military service obligation (MSO). This bonus is paid only to persons with skills that match local unit vacancies. To receive this bonus, members must agree to serve with the Selected Reserve to the end of their MSO. In FY 1986, over 8,000 prior service enlistees received affiliation bonuses totalling $3.1 million. In FY 1981, which was a year similar to FY 1986 in recruiting total enlisted members to the Selected Reserve, the reserve components enlisted only 4,500 prior service members.

Enlisting prior service members into the Selected Reserve is cost effective as indicated in my statement. Table 14 of that statement shows the sizeable training costs associated with recruiting nonprior service members which are avoided.

ARMY RESERVE RECRUITING FOR PRIOR SERVICE SOLDIERS

The Army Reserve is very much aware of the advantages soldiers leaving the active component bring when they are persuaded to join our ranks. Not only do they allow us to avoid the cost of training a non-prior service recruit, but they also bring experience on which we can place no price. While we are currently pursuing a very active program to convince soldiers to transition from Active Army service to Army Reserve service, the fact is that our force structure constrains the placement of the most experienced of these soldiers. Our need for non-prior service recruits is driven by the volume of positions in our units requiring low enlisted pay grades.

During Fiscal Year 1986 we attracted and placed 12,017 soldiers leaving Active Duty into Army Reserve troop units and an additional 5,784 soldiers into the Individual Ready Reserve. Of the soldiers joining our units, 3707 were paid an Affiliation Bonus. The Army Reserve paid approximately $1.5 million in Affiliation Bonuses in fiscal 1986 and, considering the number of trained, experienced soldiers we attracted, we feel it is money well spent.

The continued support of Congress for Reserve incentives to include the range of Selected Reserve Incentive Program bonuses and the New GI Bill will help ensure that the Army Reserve will continue to be successful in attracting and retaining valuable, skilled and experienced prior service soldiers.

RECRUITING

The Army National Guard is very much aware of the advantages soldiers leaving the active component bring when they are persuaded to join our ranks. Not only do they allow us to avoid the cost of training a non-prior service recruit, but they also bring experience on which we can place no price. While we are currently pursuing a very active program to convince soldiers to transition from Active Army service to Army National Guard service, the fact is that our force structure constrains the placement of many of these soldiers. Our need for non-prior service recruits is driven by the requirement for grade and skill compatibility within our units.

During Fiscal Year 1986 we attracted and placed 9,547 soldiers from Active Duty, Individual Ready Reserve, and Standby Reserve into National Guard troop program units. Approximately 2400 were paid an Affiliation Bonus. The Army National Guard obligated $1.2 million in Affiliation Bonus initial payments in fiscal 1986 and, considering the number of trained, experienced soldiers we attracted, we feel it is money well spent.

Legislation to make the Selected Reserve Incentives and the New GI Bill permanent and continued support from congress will insure that the Army National Guard will continue to be successful in attracting and retaining valuable, skilled and experienced prior service soldiers.

NEW UNIT INCENTIVE PAY

Although it is difficult to identify action that Congress could take that would directly cause individuals leaving active duty to affiliate with the Guard or Reserve, there are areas where Congress could assist in making service in the Guard or Reserve more attractive to personnel with active duty experience. For example, a new unit incentive pay would be an enticement for enlisted veterans to affiliate with hard to man units such as Naval Reserve Ships or in billets in direct support of the Marine Corps. Additional incentives are also needed to entice officers who are health care professionals with critical skills to join and remain in the drilling Reserve.

There are also broad steps Congress could take to attract additional veterans to Reserve service, such as: providing tax credits for employers of drilling Reservists, providing an income tax exclusion for some or all of a Reservist's drill pay, providing additional preference points for drilling Reservists seeking Federal employment, and possibly even conditioning some veterans benefits on a veteran's Reserve status.

CONGRESSIONAL SUPPORT

Three areas in which Congress may assist the Marine Corps in retaining Prior Service personnel in the Reserve are:

o Support for the Full-Time Support (FTS) program.

o Employer incentives.

o Allocation of funds for retraining hard skill MOSs.

Annually, approximately 25,000 Marines are released from active duty. FTS Procurement Liaison personnel are assigned the mission of briefing these Marines at separation and notifying prior service recruiters of the Marines release and civilian location. Support of the FTS program would enhance Marine Corps capability by providing additional personnel dedicated to prior service retention. Supporting the President's budget would be helpful in this area.

At times Prior Service Marines are reluctant to affiliate with the Selected Marine Corps Reserve (SMCR) because they fear employer disapproval. Programs designed to produce optimum employer understanding and support would be beneficial. These programs could include employer incentives (i.e., tax incentives, preferred contractor status, etc.) as well as employer education.

Many Marines are unable to affiliate with the SMCR because their MOS does not match those required by the local Reserve unit. Funding for retraining would facilitate retaining these Marines in order that they may continue service in the Reserve. Supporting the President's budget would be helpful in this area.

GUARD AND RESERVE RETENTION REPORT

Of our new accessions in the Air National Guard (ANG), 61 percent have previous military service while 39 percent have no prior service. This 60/40 ratio has historically provided us with what we consider an advantageous mix of experience and youth. Recruiting soon to be separated or recently separated regular Air Force members into the ANG requires a dual emphasis. First, we must have a network of recruiters whose efforts are targeted at this client group. We presently have one ANG recruiter assigned at McGuire AFB NJ. He contacts AF members returning from Europe for separation and briefs them on opportunities in the ANG and provides specific information on ANG units near their projected home of residence. When additional full time recruiter positions are authorized and funded, we plan to establish two similar assignments. One will be at Travis AFB CA, to brief airmen returning from the Pacific. Also under consideration is a proposal to assign a recruiter in Europe to work with Air Force Base Career Advisors. Working with AF members in advance of their separation would give them more time to consider the benefits of an ANG career. We are presently developing advertising to use on the Armed Forces Network in Europe. Scheduled for introduction in the fall and targeted at those members considering leaving active duty, these announcements will highlight the ANG as the way to have the best of both civilian and military careers. The establishment of these and other recruiter positions is predicated on increased manning authorizations and the necessary funding for them. As important as providing manpower and funding for this recruiter network are, equal financial emphasis must be placed on the continuation of the New GI Bill and the Incentives Programs, particularly the Prior Service Enlistment Bonus. The New GI Bill is potentially available to almost all enlisted members, unless they have already earned a baccalaureate degree, without regard to their Air Force specialty. The Incentives

Programs provide the financial impetus which makes hard to fill positions more attractive. We solicit your support in ensuring the continuity of these programs.

GUARD AND RESERVE RETENTION REPORT

The Air Force Reserve has experienced tremendous growth over the past 10 years and has taken on new missions and weapon systems. For example, our programmed end strength was 53,000 in FY 1978 and 79,562 in FY 1987, a 150 percent growth in nine years. Also, unit conversions to new weapon systems such as the advanced model C-130 aircraft, KC-10, C-5, and the F-16 have necessitated that personnel procurement keep pace with the ever increasing manpower requirement. This personnel procurement achievement was made possible by being afforded the latitude to exceed our programmed floor in anticipation of future mission growth. During the past decade, prior service members have comprised about 75 percent of our accessions. A program designed to access active duty members who separate into the Air Force Reserve has helped us achieve our prior service objective. This year the program is constrained by the end strength ceiling, prescribed by Public Law 99-661 (10 USC 261, Section 411). Since the Air Force Reserve achieved its end strength on 17 Apr 87, we are having to reject capable members. Similarly, the early-out program is coming into the spotlight this year. With the current drawdown in the active Air Force, service members will be taking early-outs and should be encouraged to join the Air Force Reserve. They, likewise, will be in the position of wanting to join, but perhaps denied the chance because of end strength considerations occasioned by the ceiling. We would profit in accessing prior service members without external constraints and doing so could improve our mission readiness. Our request is that the end strength ceiling in Public Law 99-661 be eliminated. If this were done, reserve components would be permitted to access as many qualified prior service members as their budgets and policies would allow without regard to a ceiling. We appreciate your consideration of this request.

END STRENGTH LIMITS

Major General SCHEER. Senator Stevens, along that line, this was the first year our end-strength authorization was given as a ceiling rather than as a floor. So this ceiling now is preventing the flexibility that we did have once of keeping people in the total force—i.e., when they want to leave active duty, bringing them into the Reserve Forces.

We are at our end-strength for 1987 already. So as I mentioned, if we had been under the traditional floor, we could still be bringing some of these people in.

Mr. SHAW. The only option in dealing with that, Senator Stevens, is that we are authorized to grant each of the components a 2 percent increase above their ceiling. But I think the General is quite correct in that it is a problem. We are very successful in the recruiting area, and some of the components have already reached their 1987 goal.

Senator STEVENS. Well, I think we ought to take a look at that, because if the end-strength has got to come down in the regular services, it would seem that the end-strength in the Guard and the Reserve ought to be moved up accordingly to assure that we take a portion of those people who are in effect forced out by virtue of the budgetary constraints and the end-strength limitations.

I would like to look into that, Mr. Chairman. I do not think we can afford to lose the opportunity to attract them immediately when they leave the Services. I am concerned that you might not even have enough people to man the equipment we have gone to such great lengths to get for you in the last few years.

EIELSON AFB

I have got to get a little provincial, too, Mr. Chairman. I have a little battle going on with a fellow over in the House who keeps insisting that the KC–135 Unit in Eielson has been misplaced.

[Laughter.]

Senator STEVENS. I know where it is, and he knows where it is, and it is just one of those problems. He has knocked out the MILCON funds. Now if the MILCON funds for the Eielson Unit are not in this 1988 budget, what is going to happen to that KC–135 Unit, General?

Major General CONAWAY. Sir, as you know, we are doing some work up at Eielson right now. The Actives are helping us, and we are piggybacking off of their facilities. But if there is one place that needs adequate facilities, due to the temperature and the elements in the wintertime, it is Eielson.We have four tankers up there. They are strategically placed. They are properly placed because of the workload that they have. They contribute to the Active components with not only strip alert, but day-to-day refueling missions. With the increased activity that is taking place up in the Alaska area as kind of our front line of defense, we definitely need those facilities, sir. We probably cannot do any expansion of that tanker unit at all, and will continue to have to operate on a shoestring. Readiness will be impacted if we cannot get those facilities as soon as possible.

Senator STEVENS. Tell us just briefly, what are the new support missions that that unit is going to perform once it is fully operational?

Major General CONAWAY. Well, with its four KC–135Es, the re-engined tankers, that unit will be responsible for augmenting the Active Air Force KC–135s that are up there in the day-to-day refueling activities. There are refueling activities that take place with our air defense aircraft, the 30-some-odd F–15s that are up there, with the AWACs that are now based up there, the A-10s, and the Royal Canadian [RC] aircraft, plus the other types of special aircraft that are up there.

So they have a day-to-day, real-world mission that they are responsible for.

REFUELING OF B-52'S IN ALASKA

Senator STEVENS. I understand the B–52s are now flying some missions over Alaska. Would this group be refueling them, too?

Major General CONAWAY. Yes, sir, they are. Every airplane that ends up transiting the Alaskan air space, that unit is involved in helping to refuel. That includes even C–5s and C–141s, sir.

Senator STEVENS. I have just got a couple more questions, gentlemen.

M–60A–4 TANK

General Burdick, the National Guard Association has suggested a program to develop a follow-on M–60 series tank known as the M–60A–4. The total cost of that program, assuming the National Guard Association's cost projections are correct, will be $2- to $3 billion to convert approximately 3000 M–60A–3s to A–4s. What is the Army National Guard's position on that improved M–60?

Lieutenant General TEMPLE. Sir, let me respond for General Burdick, if I may, please. Quite obviously the survivability of our crews and the capability of our tanks to kill the Soviet threat is paramount in our minds. The proposal by the National Guard Association appears to be a very realistic one, but I say "appears" in that we are now resolving that issue with the Army based upon what a classified threat might very well be from Soviet armor. So I would prefer not to answer it in public hearing, but provide it for you in a classified forum.

Senator STEVENS. I am told that for about the same amount of money the Army Guard could buy over 1000 M–1A-1s.

Lieutenant General TEMPLE. That is true, but even at that you would still be short 2000 tanks to the requirements of the Army Guard by the end of the century.

Senator STEVENS. They tell me that there are over 2000 M–60s and M–60-A-1s that are awaiting conversion to A-3s. Rather than convert the A-3s to A-4s, why would you not convert the A-1s to A-4s?

Lieutenant General TEMPLE. It may very well be worthy of doing. But as I say, the question is the capability of the A-4 against the Soviet armor threat, and I cannot discuss that in this forum.

Senator STEVENS. Well, will you do two things for us, then? Give us a side-by-side comparison of converting the A-3s to A-4s, and the cost of converting the A-1s to A-4s, and the cost of each major component such as the engine, the gun sight, and all the rest.

Lt. General TEMPLE. Yes, sir.

[The information follows:]

EQUIPMENT

The following provides a side-by-side comparison of the costs associated with converting M60 series tanks to the M60A4 configuration:

M60 SERIES TANK MODERNIZATION CONVERSION COSTS

System upgrade	M60A1 to M60A4	M60A3 to M60A4
Engine	$143,000	$143,000
Transmission	175,000	175,000
Final drive	10,000	10,000
Improved suspension	84,000	84,000
Improved air cleaner	11,000	11,000
Improved turret drive	50,000	50,000
Upgrade armor	102,000	102,000
Lower cupola profile	6,000	6,000
Laser protection	14,800	14,800
Fire suppression	18,000	18,000
Increase ammo storage	30,000	30,000
Improved fire control system	9,000	9,000
Thermal sight enhancement	20,700	20,700
Upgrade laser range finder	60,000	60,000
Add on stabilization	50,000	
T142 tank track	21,000	
Driver thermal sight	6,000	
Smoke grenade launcher	2,000	
M242 co-axial machine gun mount	1,000	
Install tank thermal sight	98,000	
Improve electrical system	5,100	
Conversion kit hardware	16,900	
Operations and maintenance (labor costs to accomplish conversion)	100,000	100,000
Totals	1,033,500	833,500

IMPROVEMENTS IN M60A3

Senator STEVENS. And then give us a classified statement that we can review to support that. I am not sure we will have time for a classified hearing on that, but give us the classified statements so we can read that, too.

Lt. General TEMPLE. All right.

[The information follows:]

EQUIPMENT

In 1985 the United States Armor Center concluded an extensive study which provided a blueprint for investments in the generic area of armor through the year 2000. The final report was published by HQ TRADOC as the Armor Investment Strategy. The recommendation concerning continued improvements to the M60A3 was:

[Deleted.]

Senator STEVENS. Mr. Chairman, I would ask that the question Senator Kasten wants to address to the National Guard be included in the record, and that they respond.

Chairman STENNIS. Without objection, it is so ordered.

CURRENT STATUS OF GUARD AND RESERVE

Senator STEVENS. Gentlemen, as I wander around the country, and I do quite a bit, at these military installations, I know you used to do that, too, and contributed a great deal, I am impressed with the status of the Guard and the Reserve right now. I think that they are at peak performance, and we have got to maintain that particularly in the period we are going into now and the concept of getting this, hopefully getting an arms control agreement, we must maintain our readiness and keep your people on absolute alert status. Because I think this is going to be one of the most critical periods of our whole defense plan.

I hope that you all will keep us informed if there is anything that we can do to help you. We cannot think up these initiatives unless we have your help to tell us where your problem areas are.

I appreciate it, Mr. Chairman.

Chairman STENNIS. Thank you, Senator. Thank you very much.

General Temple is compelled to leave. We thank you for your attention here, for your help, and for your testimony. It has been very helpful, indeed.

All right, gentlemen, we are not finished yet, but we will conclude rather soon.

Let me say a word now. I do not want to give advice, and I do not have anything special that I want to say about the development between the governors and the Reserve. I have never been a governor, and never will be, so I have no lenience particularly with governors.

But it is a serious thing for you now with all of this fine development you have made, and the capability you have, to have a serious conflict with the governors about the training abroad. I am not trying to give you any advice, but you let 50 governors take out after you now, they can make a dent. You know, it is just not something that you should just be stepping over; you just have to get a way to settle it and all. That question is going to be raised in our supplemental appropriations bill. If I may give an illustration, when I first came here it was not long before we had the contest between the sitting President, Mr. Truman, and the ranking commanding officer in the war in Korea. Things got hot as a six-shooter, and the mail came pouring in here. They quit counting the letters of protest when the President dismissed General MacArthur, the commanding officer in Korea, and just started to weighing it.

Virtually everyone was for General MacArthur. He was very distinguished, as you remember—he was in World War I and in World War II. Anyway, it opened up hearings on the subject matter just as hot as a firecracker. The hearings went on one day, and two days, and General MacArthur was the best witness I ever heard, without exception.

But the sentiment turned around gradually. People understood when they called the attention to the clause in the Constitution that the

President shall be Commander in Chief—the President of the United States shall be Commander in Chief of all the military forces. There was no reflection on General MacArthur, and none on President Truman.

Things quieted down, and that committee never did render an actual report. It just said that they were taking testimony, and the matter has been settled, or something like that. I just mention this by way of illustration. You are a fine organization and have made so much splendid progress, you must not get into a big contest with these governors about this training. I do not expect you to try to answer that now. I just called it to your attention.

Were you indicating you wanted to be heard?

Major General CONAWAY. Yes, sir, Mr. Chairman.

That is a very serious issue you bring up, and it is a very important one that has impacted the National Guard. It even brought about the Montgomery Amendment last year that basically took away the consent of the governors for OCONUS training, but left them with control of the Guard to override the OCONUS training issue for a bona fide state emergency.

Sir, our training is working very well today with the Army and the Air Guard. The governors, most of them, have been briefed by briefing teams that have gone out, and we are articulating better, and we were probably remiss in informing them of how much of a part of the total Army and the total Air Force the Army and the Air Guard are with C–141s, and KC–135s that obviously have to be used wherever the Department of Defense needs to use them.

But it is working very well. There is a challenge to the Montgomery Amendment and the courts by Governor Perpage. It is basically a gentlemen's lawsuit asking for a declaratory judgment on the constitutionality of it that will be heard in mid-June. We think that will survive all right.

Our concern, sir, is we would like not to have any additional legislation which we know is being proposed on the Senate side that would tend to muddy up the water. We think the issue is okay the way it is.

The governors did not even bring the issue up at their February meeting. That is how much they want the issue to settle down and go away.

Chairman STENNIS. Well, now, that is encouraging. Does anyone else have a brief comment?

Mr. SHAW. Mr. Chairman, if I might just comment?

Chairman STENNIS. Yes, you may proceed.

Mr. SHAW. This issue of the governors' consent for overseas training for the Guard is somewhat clouded by the fact that you have had various governors in various States raising the issue. The one that I am really concerned about with respect to all of this is what the impact within the Department of Defense will be on the Guard and Reserve. When people who prepare these budgets, approve these budgets, and put more missions into the Guard and Reserve, it is expected that those forces will be capable of handling those missions. When people begin to doubt the ability of this Nation to rely upon those components when we are literally a heartbeat away from mobilization today, then we have a serious problem.

Chairman STENNIS. All right. You may file an additional answer if you wish to on that.

I have one question here, and this will not take very long.

RESERVE AIRCRAFT CARRIER WINGS

Admiral Kempf, there are plans, as I hear, for two Reserve aircraft carrier wings in the Navy. Now would it be possible for an aircraft carrier to be placed in the Reserve? What do you think the cost or the savings involved would be by placing one of the carriers in Reserve status? We do not have enough proof before us on this subject is the reason I am bringing it up now.

Could the Navy Active Reservists or a small cadre of active personnel maintain the ship? Give us an answer on that, gentlemen. Just how would you handle this subject?

Vice Admiral KEMPF. Well, Senator Stennis, that subject has come up through the years. This is my fourth time before this committee, and the answer really lies in the requirement of the Navy to have 15 deployable carriers.

As soon as you say "deployable" it takes it out of the realm of what we can do with the Reserve. We have very capable forces, but we do not deploy in peacetime. An aircraft carrier is a very large requirement. It has a great housekeeping requirement that has to be maintained. It would be very, very difficult, in my judgment, to take on an aircraft carrier in the Reserve.

We would much rather see them in the Active Force but have our two carrier air wings that would augment the one that is in what we call deep SLEP, Service Life Extension Program, and a second carrier that would be in overhaul. So that would be our contribution, which I think would be best for the country and our maritime commitments around the world.

Chairman STENNIS. Well, I thought that would be your answer, but I thought it ought to go in the record here. If you want to file some additional testimony or evidence on that, we will be glad for you to do so.

Now we are very glad that Senator Kasten could get here this morning, and I will be glad to recognize him at this time.

Senator KASTEN. Mr. Chairman, thank you very much.

I understand that my questions have been submitted for the record, so I do not want to take the further time of the committee except to thank and congratulate the representative of the National Guard and the Reserve. They are an important part of our overall defense effort, and I think that they deserve the greatest amount of support that we can provide them through this subcommittee.

Thank you, Mr. Chairman.

Chairman STENNIS. Well, we thank you for your statement and are glad that you could get here. Your questions will certainly be given attention.

General Scheer, we will get back to you now. If you feel like you have something worthwhile to say——

[Laughter.]

Chairman STENNIS. You have great patience, I know.

All right, proceed.

AIR FORCE RESERVE

STATEMENT OF MAJOR GENERAL SCHEER

Major General SCHEER. Thank you, Mr. Chairman. We, too, have a formal statement we wish included in the record.

Chairman STENNIS. Without objection, that statement will be placed in the record.

Major General SCHEER. Mr. Chairman, Senators Stevens and Kasten, as I mentioned before, we have reached our end-strength again for 1987 at 80,000. Our conversions are going at a very aggressive pace. Next month we will take delivery of a factory F–16 to begin the new F–16C unit at Luke in Arizona.

We have reached our full complement of aircraft out here at Andrews in the C–141. Shortly we will begin our second C–5 unit at Westover. The one at Kelly is going very well. Both of those will be up to speed in about 18 months. Chicago is getting new C–138s, thanks again to the Reserve equipment added by the Congress.

Our three major equipment shortages lie in the tactical airlift area, rescue area, and electrocountermeasures. We still have a good number of very old C–138s. We have old helicopters in our rescue units, the H–3s, and then perhaps no more than 10 percent of ECM equipment that we require for our fighters and tactical airlift.

Our appropriations request increase in the O&M and Reserve Personnel for next year are solely to support those conversions that I mentioned, plus the medical build, plus a KC–10 maintenance program which we have been asked to participate with SAC for support of that aircraft.

But as you have heard from the rest of these folks, the Air Force Reserve likewise, is an all-time state of readiness. We must do more, as Senator Stevens said before, about attracting those people from the Active Duty into the Reserve Forces. That is obviously the cheaper way to go, and by far gains us the most experienced individuals. We will continue in that area. 80 percent of our force, incidentally, is made up of those types of individuals.

I lastly would like to thank this committee and the leadership it has shown in getting us at the level of readiness that we are today. I can pledge to you that we will continue every effort to fine-tune our current training and mobilization requirements.

Thank you.

[The prepared statement of Major General Scheer follows:]

PREPARED STATEMENT OF MAJ. GEN. SCHEER
CHIEF, AIR FORCE RESERVE

MR. CHAIRMAN AND MEMBERS OF THE COMMITTEE:

It is with great pleasure that I report the Air Force Reserve attained an end strength of 78,519 in Fiscal Year (FY) 1986, exceeding our programmed end strength of 77,400. Our units are well-manned and well-trained and capable of mobilizing in 24 hours and deploying within 72 hours. As of December 1986, Air Force Reserve flying units were combat ready, excepting those in conversion. With the continuing support of the Congress, the keys to Reserve effectiveness have been, and continue to be, quality personnel, meaningful missions, modern equipment and the strong support of the active force.

As Reservists train, they support requirements that would otherwise have to be satisfied by active force resources. For example, Air Force Reserve strategic associate and tactical airlift units flew 128,528 flying hours in FY 1986, augmenting the Military Airlift Command (MAC) global airlift mission. Nearly 409,000 tons of cargo were airdropped or airlanded during these operations. Associate C-9 aeromedical evacuation crews with their MAC counterparts logged 22,582 flying hours airlifting more than 57,000 patients in the United States. In support of Strategic Air Command's worldwide aerial refueling missions, Reserve KC-10 and KC-135 crews flew more than 8,000 missions supplying fuel to more than 9,000 airborne receivers.

In an operation which began in 1977, we continue to share rotational duty in Panama with the Air National Guard in support of United States Southern Command. We provide six C-130 aircraft and seven crews six months of each year. Throughout the year, Reserve aerial port squadrons augment airlift support to Osan Air Base in the Republic of Korea on a rotational basis.

Let me briefly update you on other Air Force Reserve accomplishments during FY 1986. Air Force Reserve rescue and recovery units were officially credited with saving 52 lives. It was a particularly busy year for the 304th Aerospace Rescue and Recovery Squadron, Portland IAP, Oregon, as they alone were credited with 24 saves including the highly acclaimed rescue of Oregon Episcopal School student hikers stranded on Mt. Hood. Air Force Reserve forces transported some 150,000 pounds of goods to Central America, which amounted to nearly 75 percent of all military humanitarian cargo moved under the Denton Amendement to the 1985 Defense Authorization Act. Two Air Force Reserve units joined Military Airlift Command (MAC) aircrews in providing disaster relief for El Salvador, which was devastated by a major earthquake in October. The 37th Mobile Aerial Port Squadron (MAPS), at March AFB, California, walked away with first place overall in the sixth biennial Patriot Rodeo competition. Security police Reservists won the Chief's award at the 1986 Peacekeeper Challenge competition. The Reserve joined the Air National Guard and MAC in airlifting more than 19,000 bales of hay to farmers in the Southeast, whose livestock were hard-hit by the year's drought. USAFR fighter units flew more than 50,000 flying hours in FY 1986. Reserve fighter units participated in major exercises such as Red Flag, and its Canadian equivalent Maple Flag. Tactical fighter units continue to deploy to NATO bases under the Checkered Flag Program. Nine Air Force Reserve units were presented the prestigious Air Force Outstanding Unit Award.

Our high level of readiness and combat proficiency in state of the art weapons systems attracted international attention. Lieutenant General Paul Th. Sommerhoff, the Federal Republic of Germany's General Air Office Chief, and his staff visited our headquarters and units in February 1986 to study Air Force Reserve programs and units. It is his stated intent to replicate FRG air reserve units in the USAFR model--which he described as the most advanced and combat effective in the world.

KC-135 units have completed re-engining of KC-135A model aircraft to the KC-135E model. By utilizing donor JT3D engines from used Boeing 707s the KC-135E now has more offload capability with less noise and pollution. The new engines provide a 14 percent increase in fuel efficiency over the KC-135A. Like our active counterparts, the ultimate goal is the KC-135R which is programmed to be received in the 1990s. The KC-135R uses the fuel efficient CFM-56 engine to provide even greater thrust while using less fuel.

The Air Force Reserve will continue to modernize its airlift and fighter forces in FY 1988 and FY 1989.

In 1985 we returned to the strategic airlift mission using Reserve unit equipped aircraft when our airlift wing at Kelly AFB, Texas, received the first Reserve C-5. They now have six C-5s, and will receive an additional four this year. In the first quarter of Fiscal Year 1988, we will activate our second C-5 unit at Westover AFB, Massachusetts and Kelly will receive an additional four C-5s during FY 1988. By the second quarter of Fiscal Year 1989, both Kelly and Westover will have their full complement of primary authorized aircraft: 15 at Kelly and 14 at Westover. Both Kelly and Westover had been equipped with C-130s, which are being transferred to other Reserve units.

In FY 1988 our first C-141 equipped strategic airlift unit at Andrews AFB, Maryland will have its full authorization of eight aircraft. The C-141 has long been the backbone of the strategic airlift fleet and the Air Force Reserve is proud to be able to participate in the Total Force with the C-141 Starlifter in our own units.

To support the tactical airlift mission, the Air Force Reserve will receive eight new C-130Hs in FY 1988 to replace eight of our aging C-130A models at Chicago O'Hare. The authorization and funding added by the Congress in FY 1987 allowed us to effect this conversion. The remaining 16 C-130A aircraft that we operate average nearly 30 years of age. Most of the A-model fleet has been operating for the past year under flight restrictions that have imposed severe operational and training penalties on our aircrews. Supportability of the engines is getting more and more difficult, and it may become necessary to re-engine them to keep them flying. Yet they are programmed to remain in the inventory until the early 1990's when they are to be replaced by C-141s displaced from the active force inventory by the purchase of C-17s. While this plan is workable it is contingent upon timely procurement of the C-17.

We are also gaining a new Special Operations Forces unit. The Air Force Reserve will activate the 71st Special Operations Squadron (SOS) at Davis-Monthan AFB, Arizona in the first quarter of FY 1988 with five CH/HH-3E helicopters.

Our fighter force is also modernizing. We will build from 228 to 240 aircraft in FY 1988 and maintain that level throughout FY 1989. Aging F-4D aircraft will be replaced by newer, more capable F-16A/B aircraft at Homestead AFB, Florida and Tinker AFB, Oklahoma in FY 1988, and at Wright-Patterson AFB, Ohio in FY 1989. Additionally, Luke AFB, Arizona will reach its full complement of 24 new F-16C/D aircraft during FY 1988. With these conversions, only two F-4 units will remain in the Air Force Reserve. However, continued modernization which is central to readiness and war fighting capability is inextricably tied to maintaining currently programmed Air Force procurement rates of new aircraft. Any cutbacks in F-15 and F-16 procurement levels would dictate that our aging F-4D aircraft remain in the inventory beyond the early 1990s.

While the flying units provide a significant portion of the Total Force, the Air Force Reserve also has a large combat support and mission support capability. Many of our combat support and mission support activities, as part of their training activities, make significant peacetime contributions which assist in keeping the peacetime costs of the Total Force to a minimum. The Air Force Reserve provides 71 percent of the Air Force aeromedical evacuation units and 22 percent of the Air Force's tactical hospitals and clinics. Currently, Reservists contribute almost 60 percent of the depot level aircraft battle damage repair capability with personnel in six Air Force Logistics Command gained combat logistics support squadrons. Also, the Air Force Reserve represents 20 percent of the Air Force civil engineering force and equipment and nearly 50 percent of the aerial port squadrons. The majority of our combat support build from FY 1986 to FY 1987 is in civil engineering and medical forces.

In addition to our unit program, the Air Force Reserve has a successful program to provide trained individual mobilization augmentees (IMAs) to the active force upon mobilization. IMAs are members of the Selected Reserve and are assigned to specific positions established in active force organizations. They are trained and supervised by the active force. IMA requirements are identified by grade and skill as part of the annual wartime manpower planning process of the Air Force.

Reservists assigned to IMA positions are fully qualified in their Air Force specialties. As a result, these Reservists in fields as diverse as medical, legal, research engineering, maintenance, and intelligence are able to assist with the day-to-day mission of their organizations while they are on inactive duty and active duty training periods. For example, physicians performing medical diagnosis and treatment, or teaching other physicians in clinical conference on a typical Air Force Base may be highly skilled civilian practitioners who are also IMAs performing their monthly or annual training. As another example, IMAs in the intelligence field are producing standardized critical area intelligence summaries for postulated missions into hostile geographic areas. Intelligence IMAs also support the Airborne Warning and Control System through deployment to Saudi Arabia.

We are requesting an IMA end strength of 13,138 for Fiscal Year 1988 and 13,394 for FY 1989. These end strength translate to average strength of 12,596 in FY 1988 and 13,080 in FY 198[illegible]. The total Air Force requirement for approximately 20,000 wartime IMA positions is indicative of the importance attached to this program. For the past few years, we have been working toward increased manning of these positions consistent with our ability to fund the program. Requests from the active force for IMAs to fill approved wartime manning positions always far exceed the funds available to do so.

I mentioned earlier the very favorable manning posture the Air Force Reserve has achieved and maintained. We started FY 1986 with 75,214 people and ended the year with an on-board strength of 78,519, a net increase of 3,305 people. We have maintained the quality of our force as evidenced by the fact that 99 percent of all non-prior service enlistees were high school graduates or equivalent. Our unit commanders and supervisors at all levels continue to take an active recruiting role. With their enthusiasm and hard work, combined with the excellent performance of our recruiting force, and a continued command emphasis on retention, we fully expect to meet FY 1987 programmed end strength.

We finance our force structure and programs primarily in two appropriations. These are the Reserve Personnel, Air Force appropriation and the Operation and Maintenance, Air Force Reserve appropriation.

The Reserve Personnel appropriation provides for the pay and allowances of Reservists during their active and inactive duty training periods, while performing special tours of active duty, and while undergoing school training. It also includes funding for Reserve personnel called to full-time active duty for training, recruiting, and administration of the Air Force Reserve program. Also included are the military personnel costs of students enrolled in both the Senior and Junior Reserve Officer's Training Corps (ROTC) programs and students participating in the Armed Forces Health Professions Scholarship Program (HPSP).

Although ROTC and HPSP programs are not managed or controlled by the Air Force Reserve, their costs are included in this appropriation.

The FY 1988 request for our Reserve Personnel appropriation is $614.7 million which is an increase of $50.1 million over FY 1987 requirements. This growth reflects the full year impact of the Luke AFB, Arizona F-16 conversion of fourth quarter FY 1987 and the two FY 1988 conversions from F-4 aircraft; the Kelly AFB, Texas unit's growth to 14 C-5A aircraft and the conversion from C-130s at Westover AFB, Massachusetts; the full-year impact of the FY 1987 medical service unit personnel build; and other additional aircraft in FY 1988 account for most of the requested increase in personnel funding. The FY 1989 request of $616.5 million is an increase of only $1.8 million over FY 1988, and provides for the growth of our two C-5 units to their full complements of aircraft, continued growth of medical service unit personnel, the full year impact of an FY 1988 associate KC-10 maintenance manpower requirement and annualization of the two FY 1988 F-16 conversions plus one new F-16 conversion at Wright-Patterson AFB, Ohio.

The Operation and Maintenance, Air Force Reserve appropriation provides for the day-to-day operating expenses of Reserve bases and units. This includes the pay of civilian personnel, aviation and ground fuels, depot maintenance, real property maintenance, supplies and other expenses required to carry out the Reserve mission. This appropriation increases in FY 1988 by $85.8 million of which $52.6 million is price growth and $33.2 million is program growth. The requested program increases are the result of obtaining additional F-16 and C-5 equipped aircraft at existing units and the F-16 unit conversions at Tinker AFB, Oklahoma and Homestead AFB, Florida plus the C-5 conversion at Westover AFB, Massachuetts. It also includes the full year's operation of additional C-141 aircraft at Andrews AFB, Maryland in FY 1987, and other unit and mission changes to enhance readiness and wartime capability. The increases in FY 1988 occur in C-5 Strategic Airlift ($22.4 million), F-16 Tactical Fighters ($16.6 million), KC-10 Tanker Cargo ($6.9 million), C-141 Strategic Airlift ($3.6 million), new Special Operations Forces unit ($2.7 million) and Civil Engineer and Aerial Port Units ($1.4 million). This appropriation increases in FY 1989 by 52.1 million of which 33.9 million is price growth and $18.2 million is program growth. The requested program increases are the result of obtaining additional C-5 equipped and F-16 aircraft, and the F-16 unit conversion at Wright-Patterson AFB, Ohio. It also includes the full year's operation of the FY 1988 C-5 aircraft conversion plus the KC-10 maintenance manpower requirement and other unit and mission changes to enhance readiness and wartime capability. The increases in FY 1989 occur in F-16 Tactical Fighters ($22.7 million), C-5 Strategic Airlift ($21.0 million), new Special Operations Forces Unit ($1.9 million), KC-10 Tanker Cargo ($1.3 million), and A-10 flying hour increase ($1.1 million). Depot Maintenance program growth ($5.2 million in FY 1988 and $8.2 million in FY 1989) is related to the addition of more modern, sophisticated aircraft to the Air Force Reserve inventory and increased structural repairs on the F-16 and aging F-4 fleets. Aircraft security personnel will increase by $2.7 million in FY 1988 and $1.1 million in FY 1989.

The requested growth continues to recognize the ever changing needs of our national defense and provides the Air Force with a better equipped, more operationally oriented Air Force Reserve that can be mobilized immediately.

In summary, the war-fighting and readiness role of the Air Force Reserve continues to be an important element within the Total Force, and we will continue to modernize our equipment; refine and improve our mobilization procedures; and recruit, train, and retain the people needed to ensure we can fight and win at any time. This committee has shown leadership in ensuring the availability of readiness equipment for our Reserve forces. We appreciate the continuing strong support of the Congress.

This concludes my statement, Mr. Chairman. I will be glad to respond to questions.

TABLE 1

DEPARTMENT OF THE AIR FORCE

AIR FORCE RESERVE PERSONNEL

	FY 1986 (ACTUAL)		FY 1987		FY 1988		FY 1989	
	END	AVERAGE	END	AVERAGE	END	AVERAGE	END	AVERAGE
FLYING UNITS	37,342	36,901	36,837	35,995	38,499	37,940	39,193	38,460
MISSION SUPPORT UNITS	26,137	24,710	27,780	27,067	28,886	28,392	29,881	28,883
INDIVIDUALS	12,254	11,909	12,483	12,000	13,138	12,596	13,394	13,080
STATUTORY TOURS	295	285	310	310	320	320	320	320
RECRUITERS	317	307	355	348	349	349	349	349
NON-PRIOR SERVICE ENLISTED PROGRAM	1,284	1,200	1,425	1,270	1,425	1,270	1,425	1,270
NON-PRIOR SERVICE ENLISTED PERSONNEL AWAITING TRAINING WITH PAY	890	453	372	372	683	683	938	688
TOTAL SELECTED RESERVE	78,519	75,765	79,562	77,362	83,300	81,550	85,500	83,050

TABLE II

DEPARTMENT OF THE AIR FORCE

AIR FORCE RESERVE FORCE STRUCTURE, FLYING UNITS

		END OF FISCAL YEAR		
EQUIPPED UNITS	1986	1987	1988	1989
C-5 Strategic Airlift	1	1	2	2
C-141 Strategic Airlift	1	1	1	1
C-130 Tactical Airlift*	14	14	14	14
Aerospace Rescue & Recovery	3	3	3	3
WC-130 Air Weather Service	1	1	0	0
HH/CH-3E Special Operations Force	1	1	1	1
AC-130 Special Operations Force	1	1	1	1
KC-135 Strategic Refueling Tanker	3	3	3	3
F-4 Tactical Fighter	5	5	3	2
F-16 Tactical Fighter	1	2	4	5
A-10 Tactical Fighter	5	5	5	5
Total Equipped Units	36	37	37	37
ASSOCIATE UNITS				
C-141 Strategic Airlift	13	13	13	13
C-5 Strategic Airlift	4	4	4	4
C-9 Aeromedical Evacuation	1	1	1	1
KC-10A Tanker Cargo	3	3	3	3
Total Associate Units	21	21	21	21
**TOTAL UNITS	57	58	58	58

*Includes an aerial spray detachment of three UC-123K aircraft until FY 1986 when the capability was transferred to C-130 aircraft.

**These units also include over 250 support units such as Consolidated Aircraft Maintenance Squadrons, Weapons Systems Security Flights, Mobility Support Flights, etc.

TABLE III

DEPARTMENT OF THE AIR FORCE

AIR FORCE RESERVE FORCE STRUCTURE, MISSION SUPPORT UNITS

	END OF FISCAL YEAR			
	1986	1987	1988	1989
Combat Logistics Support Squadrons	6	6	6	6
Aeromedical Evacuation Units	21	21	21	21
Medical Service Units/ Contingency Hospitals	18	19	19	20
Aerial Port Squadrons	67	68	68	68
Civil Engineering Squadrons/Flight	53	57	58	59
Civil Engineering Squadrons (Heavy Repair)	1	1	1	1
Communications Security Squadrons	2	2	2	2
Basic Military Training Squadron	1	1	1	1
Numbered Air Forces (Reserve)	3	3	3	3
TOTAL	172	178	179	181

CONCLUDING REMARKS

Chairman STENNIS. Well, you are welcome. You gentlemen have made some of the most outstanding achievements in the military that I have seen since I have been here, and I commend you. For all Americans, I thank you, too, all of you.

Do we have further questions, gentlemen, or further observations to make?

Senator STEVENS. We have one more General to go, I think.

Chairman STENNIS. Have we gotten to everyone?

Major General SALESSES. Yes, sir. If I may, I wondered if I might speak?

Chairman STENNIS. Oh, yes, sir, right now.

Major General SALESSES. I would just request that my detailed statement be provided for the record.

Chairman STENNIS. Yes. Without objection, the detailed statement of the General has been published in the record.

Major General WARD. I would just ask that my detailed statement be included in the record.

Chairman STENNIS. Yes, all right. Without objection, the detailed statement of the General has been placed in the record.

SUBMITTED QUESTIONS

Senator Byrd of West Virginia has asked the Committee to insert his questions in the record.

I have questions of my own that I did not ask, and I ask that they be put in the record, too, at this point together with all Members' questions for the record.

[The following questions were not asked at the hearing, but were submitted to the Department for response subsequent to the hearing:]

QUESTIONS SUBMITTED BY CHAIRMAN STENNIS

EQUIPMENT

General Temple, the National Guard Association has suggested a program to develop a follow-on M60 series tank known as the M60A4. The total cost of this program, assuming the National Guard Association's cost projections are correct, will be two to three billion dollars to convert approximately 3,000 M60A3s to A4s.

QUESTION. For approximately the same amount of money (2-3 billion dollars) the Army Guard could buy over 1,000 M1A1s. Which procurement option would the Army favor?

ANSWER. The Army National Guard would certainly like to have 1,000 M1A1 tanks in its inventory. It is the our view that the M1A1 is the best investment strategy for the Total Army. The M1A1 provides quantum improvements in crew survivability, lethality and mobility. My concern is that the procurement and fielding of 1000 M1A1s represents less than one third of the ARNG tank fleet. This means that two-thirds of our fleet would consist of M60A3 tanks. This mix-of-the-fleet leaves us with the concern that the remainder of our tank crews may not be equipped with a weapon system providing the same maximum crew survivability and lethality. On March 11, 1987, the VCSA briefed the subcommittee on Conventional Forces and Alliance Defense of the Committee on Armed Services that the Army intends to procure additional M1A1 Tanks, of which the Army Guard would receive approximately eleven battalion sets of M1s displaced from active component M1A1 fieldings. Continued support of Abrams production, at a minimum rate of 600/yr through FY 96 would provide the ARNG with the ability to keep pace with the Armor force modernization. At the same time it would provide a weapons system which has considerable growth potential, which will be able to take advantage of technological enhancements, and which will remain a formidable weapon system into the 21st century.

QUESTION. There are over 2,000 M60As and M60A1s in the current inventory awaiting conversion to M60A3s. Rather than convert M60A3s to A4s, wouldn't a good alternative be to convert the A1s to A4s thereby saving the cost of converting them to A3s and keeping the A3s in the force during the conversion?

ANSWER. The M60A1 to M60A3 conversion program has a cap of 5400 vehicles to be converted. As of the end of FY 87 approximately 4,950 will have been converted, leaving only 450 M60A1s remaining that are programmed for conversion to M60A3. Current M60A3 fielding and training schedules are dependent upon adherence to the programmed conversion of the remaining 450 M60A1s. Additionally, it does not appear as through the M60A4 development and testing could be completed in time to effectively impact the M60A3 conversion program.

GAO BRIEFING PAPER ON F-4D UPGRADE PROGRAM

QUESTION: General Conaway, are you familiar with a draft GAO briefing paper on the F-4D upgrade program? If so, what is your view of this report?

GENERAL CONAWAY: I am not familiar with the report.

STATEMENT OF NEED FOR AIR DEFENSE FIGHTER

QUESTION: General Conaway, do you believe that the Statement of Needs for the Air Defense fighter is adequate to provide an aircraft which can meet the wartime air defense threat in the mid-1990's?

GENERAL CONAWAY: Yes, I do. We participated in the writing and validation process of the Air Defense Fighter Statement of Need. It clearly describes an aircraft that will meet the wartime threat into the mid-1990's.

AIR DEFENSE AIRCRAFT

QUESTION: General Conaway, do you believe a modified F-4D, as suggested by the FY 1987 Appropriations Act, would be a superior air defense aircraft than the F-16A aircraft with its planned modifications?

GENERAL CONAWAY: At Congressional direction, the Air Force held a full and open competition in which all Air Defense variants were asked to participate. The Air Force conducted a Total Force analysis with our help and determined that the F-16A (AD) was the top competitor.

F-16 REPLACEMENT

QUESTION: General Conaway, is it your understanding that the Air Force plans to buy new F-16 aircraft to replace the A models which are transitioning to the Air National Guard?

GENERAL CONAWAY: Yes.

COST OF REPLACING F-16As

QUESTION: What is the cost of replacing the 270 F-16As in the current active Air Force inventory? Would fewer F-16s need to be purchased if the F-4D was modified to perform the air defense mission?

ANSWER: Based on a unit program cost of $17.4M (FY87 $), the cost of replacing 270 F-16s in the Air Force inventory is $4.7B. Modification of the F-4D to perform the air defense mission would not result in a reduced requirement for F-16 procurement. An annual procurement level of 240 - 260 new fighters is required to maintain the current tactical fighter force at an average age of about ten years per aircraft. The FY88-89 budget request includes procurement of only 222 new fighters per year, 42 F-15s and 180 F-16s.

COST MISSIONIZING F-4DS

QUESTION: According to the GAO, the Ogden Air Logistics Center estimates the cost of missionizing 180 F-4Ds would be $648 million. Do you agree with this estimate?

ANSWER: We agree with the Odgen Air Logistics Center estimate with the caveat that the estimate was provided at the 65% confidence level and that the $648 million covers the radar, conformal fuel tanks and infrared search and track system modifications. However, the F-4 Navigation Weapons Delivery System (NWDS) would also have to be installed in the F-4D to update its obsolete avionics and accomodate a new digital radar. The NWDS would cost an additional $50 million for the 180 aircraft. We also believe that extensive testing might be required if we proceed with the modification. The conformal fuel tanks and nose extension required to accomodate the radar would change the aerodynamic shape of the aircraft possibly requiring wind tunnel testing and weapons certification. Such testing would add an additional cost to the program.

RESERVE AIRCRAFT CARRIER

QUESTION: Admiral Kempf, there are plans for two reserve aircraft carrier air wings in the Navy. Would it be possible for an aircraft carrier to be placed in the Navy Reserve?

- Currently the Navy plans to have 15 deployable aircraft carriers, but only 14 active air wings. In your estimation could the Navy deploy all 15 carriers without mobilizing the Navy Reserve?
- What would be the cost or savings associated with placing a carrier in reserve status? Could Navy Reserve full-time support personnel and a small active cadre maintain a reserve carrier to be filled out with Naval Reservists for training exercises?
- Is there a geographic area in the U.S. in which there are sufficient reservists to make such a scenario plausible? Or would sailors have to be brought from all over the U.S. to muster a crew sufficient to man an aircraft carrier?

ANSWER: No, it would not be feasable to place a carrier in a Naval Reserve status and still meet the Navy's peacetime commitments. In addition, the personnel and training resource requirements necessary to support an aircraft carrier, even when not deployed, would seriously limit the Naval Reserve's ability to provide mobilization assets to other areas.

The Navy plan for mobilizing the Naval Reserve to the 15th carrier provides a trained, ready air wing for combat. Conceivably, the Navy could assemble the resources for a 15th air wing using assets now used for training replacement aircrews and maintenance personnel, but such an air wing would not be a trained, cohesive organization. Additionally, the resultant void in training assets would severely limit the fleet's ability to train replacement personnel for sustained operations.

Cost data for placing a carrier in Reserve status is not available. The costs associated with such a transfer would vary widely with the desired readiness requirement, peacetime mission and logistic support required for Reserve personnel. Conceptually, Navy Training and Administration of Reserve (TAR) and Regular Navy personnel could maintain an aircraft carrier in a reduced availability status while the Naval Reservists are not on board. However, such manning of active duty billets would place a great demand on TAR surface ratings already strained by the required manning of an expanding number of Naval Reserve ships.

Supporting an aircraft carrier with Naval Selected Reservists would be difficult in any single geographical area and would be accomplished only at the expense of providing mobilization resources for other deployable units. Considerable airlift resources would be required to support an aircraft carrier with personnel from outlying regions, again at the expense of other Reserve unit manning and training.

ARMY NATIONAL GUARD AMMUNITION PROCUREMENT

QUESTION. General Burdick, over the past two years, funding for the procurement of ammunition for the Army National Guard has declined by 35%, from $395.8 million to $258.1 million. What percentage of the required inventory of ammunition is currently available? What is the necessary level of annual funding to fully support the Guard and Reserve ammunition requirement?

ANSWER. Ammunition is not procured specifically for the Army National Guard; rather, the Guard is authorized a portion of the Department of the Army ammunition authorization. The FY85 ARNG Ammunition authorization was $187,402,312. The FY86 authorization was $208,418,150, an increase of 11%. The FY87 authorization was $148,171,009, a decrease of 29% from FY86 and a decrease of 21% from FY85.

The total requirements identified by the States for these Fiscal Years were as follows: the FY85 ARNG requirement was $288,401,810; the FY86 requirement was $313,071,469; the FY87 requirement was $251,987,220; and the FY88 requirement is $205,921,927. Authorizations for these years were 65% of requirements in FY85, 67% of requirements in FY86, 59% of requirements in FY87, and 70% of requirements for FY88.

This information is summarized in the following chart:

FY	REQUIREMENT	AUTHORIZATION	PERCENT OF REQUIREMENT	EXPENDITURE
85	$288,401,810	$187,402,312	65%	$139,754,423
86	$313,071,469	$208,418,150	67%	$143,106,528
87	$251,987,220	$148,171,009	59%	(Not Complete)
88	$205,921,927	$144,304,311	70%	N/A

Question. What has been the impact of the congressional dedicated procurement program in terms of improved readiness? Please be specific (e.g., quantify number of units improved from a rating of C-4 to C-2, etc.). Provide data by Reserve Component.

Answer. Since its inception in FY82, the congressional dedicated procurement program has made significant contributions to improving the combat capability of the National Guard and Reserve. However, it is not possible to directly relate the impact of the dedicated procurement program to readiness ratings for several reasons.

First, overall unit readiness ratings are a function of ratings in personnel, training, equipment and supplies on-hand, and equipment readiness. Consequently, overall C-ratings are affected by functional factors other than equipment bought for the Reserve Components, all of which are constantly changing. In the equipment and supplies on-hand category, C-ratings are also affected by Service planned procurement for the Reserve Components and redistribution of older, combat-capable equipment.

Secondly, the precise impact of dedicated funding depends upon the manner in which the funding is spent. Equipment modernization expenditures are not directly reflected in

C-ratings. In the Air National Guard, for example, expenditures for C-130Hs to replace older C-130As provides an approximate 25% increase in combat capability. While the ANG clearly has significantly increased its combat capability, there might be no difference in the C-rating of a unit from when it was equipped with the older C-130As. Similarly, expenditures for modifications to older weapons systems may improve capability but not be directly reflected in C-ratings. Within the Naval Reserve, funding has allowed for the upgrading of P-3 aircraft. In the Marine Corps, funding has been directed at ground combat equipment which has upgraded combat capabilities. In the air reserves, programs to provide ECM capability for fighter forces and to improve C-130 self-defense capabilities are also good examples.

Finally, some dedicated funding has been spent in areas which may not specifically relate to any unit's C-rating but provides vital benefits to overall Reserve Component combat capability. Examples here are expenditures on training systems and installations, such as the Air National Guard Air Combat Maneuvering Instrumentation System which provides aircrews with weapons employment training in an era when multiple live firing of missiles is prohibitively expensive.

Dedicated procurement funds do contribute significantly to improved Reserve Component capabilities even though the benefits derived from their expenditure may not be directly measurable in the C-rating system. The Department is working hard to ensure that the maximum benefit in terms of combat capability is obtained from the expenditure of those dollars.

Question. Please describe the process by which the Reserve Components decide how dedicated procurement dollars will be used to buy specific equipment.

Answer. One of the key objectives of the Department's procurement program is to ensure the fielding of a fighting force adequately equipped to perform its mission. Each of the Services has developed, within their overall procurement program, a system for determining how dedicated procurement dollars will be used. Each Service's system may differ somewhat in form and application, but the purpose is the same--to achieve maximum combat capability in the most cost-effective manner. In general, the Service's Reserve Components maintain, and regularly review, a list of high-priority, unfunded equipment requirements. The requirements are based upon Service/Reserve Component staff analyses of existing equipment shortfalls and capability modernization requirements. Some components have formal committees to review the requirements and priorities; others address them as a normal part of the functional staff process. Equipment procurement and distribution plans are then developed under the Department's "first to fight, first equipped" policy and within the constraints of total cost, timing, existing procurement plans, potential contract savings and congressional direction.

Question. What are the unbudgeted equipment requirements of the Reserve Components in FY88? (Be specific for each component.) Identify what equipment, in what priority would be bought and what the impact would be in terms of readiness.

Answer. The annual National Guard and Reserve Equipment Report, provided to the Congress by February 15 each year, outlines the major equipment requirements and planned distribution of equipment to the National Guard and Reserve under current Department of Defense planning. While this report is not designed to provide official DoD budget estimates, it indicates that approximately $10-11 billion in additional funding would be required to eliminate FY 1990 forecasted Reserve Component shortfalls and to replace substitute items projected to be in the inventory at that time. This assumes passage of the FY 1988/89 President's Budget as submitted and that existing DoD distribution plans are executed as now planned. The following paragraphs provide each Service's most pressing modernization and shortfall concerns for their individual Reserve Components if fiscal constraints were not a consideration.

ARMY NATIONAL GUARD - The major items of equipment listed below are not supported by currently planned Army distribution to the ARNG. Procurement of these items will increase the readiness and combat power of the ARNG and improve its ability to support the Total Army. The list is in priority of type of equipment required, but not in priority of quantity. If only partial funding were provided, the ARNG would buy packages which would improve the readiness rating of the largest number of units. Distribution would be to units in priority sequence to bring units to minimum deployable fill levels. The procurability of the listed equipment has been verified.

ITEM	QUANTITY	COST
M113A3 Personnel Carriers	300	$ 78,000,000
Improved TOW (Conversion Kits)	100	24,000,000
FISTV (Conversion Kits)	60	20,340,000
5 ton Cargo Trucks	565	36,725,000
Svc Life Ext Prog 2 1/2 Ton Trucks		49,000,000
Single Channel Satellite Term.	50	2,000,000
AN/PRC 112 Radio Sets	400	16,000,000
Position Azimuth Designator	18	5,850,000
Night Sight TOW	1,000	35,597,000
HEMIT Package (M60A3 Tank Bn)	20	41,900,000
MLRS	20	40,000,000
Cutting Machine OPH	1	3,500
Generator Ophthal Lens	1	7,500
Optical Fab Unit, Field	1	334,169
Launch, M60 Series	61	32,330,000
Bridge AVL	41	2,911,000
Training Devices		50,000,000
TOTAL		$434,998,169

ARMY RESERVE - Following is a list of reportable Equipment Readiness Category (ERC-A) equipment shortages required to bring USAR units to projected C-3 equipment-on-hand (EOH) level as of September 1990.

	($ Millions)
Priority One	
Communications and Electronic Equipment	374.4
Ground Forces Support Materiel	124.2
Signal Intelligence/Electronic Warfare Equipment	223.5
Priority Two	
Combat, Tactical, and Support Vehicles and Related Items	404.9
Aircraft and Aircraft Materiel	83.5
Weapons, Chemical, and Fire Control Materiel	48.4
Priority Three	
Medical/Dental Materiel	167.7
Communications Security Materiel	39.3
Missile Related Materiel	35.5
TOTAL	1,501.4

AIR FORCE RESERVE - Under current planning and budgetary constraints, two squadrons of C-130As will be retained at least until the Air Force begins receiving C-17s in the mid-1990s, and vintage HH-3 and CH-3 helicopters will be equipping combat rescue and special operations units. All three aircraft types are outdated and increasingly unsupportable. Early modernization would improve significantly both the lift and mission capability, and reliability of the affected units. The highest priority requirement for fighter aircraft is for ECM pods. Shortfalls in 9 of 11 AFR fighter wings/units will significantly reduce aircraft survivability over the high-threat, high-technology modern battlefield. An additional $253.5 million would provide for these most urgently needed assets. In the tactical airlift area, there is a pressing need to equip the entire fleet with defensive equipment against infrared and radar guided missiles. The Military Airlift Command is conducting tests of integrated systems to achieve this capability and the cost of providing this capability is expected to be substantial. However, aircraft can no longer be expected to survive in a combat zone without some means of detecting and identifying threats and having the capability of responding to those threats. Approximately $25 million is also required for critical shortfalls in aircraft support and test equipment, special and general purpose vehicles, communications equipment and base maintenance and support equipment.

AIR NATIONAL GUARD - For the Air National Guard, we continue to see progress with the "first to fight, first to equip" policy, but some tough equipment problems remain in an austere fiscal climate. In the communications area, for instance, some progress has been made, but with decreased funding levels in the current Five Year Defense Plan, long range projections are uncertain.

Continued support for Air National Guard-unique program and weapon system funding is needed. Older ANG aircraft systems simply do not compete as well for funding as the newer active systems do. Support equipment for aircraft being transferred to the Air National Guard is a major problem. The ANG has been given a Strategic Airlift mission with C-5A and C-141B aircraft, modern F-15A/B and F-16A/B tactical fighters, and will soon be receiving F-16 Air Defense fighters, and in each of these cases available support equipment is not adequate. Because of the force structure differences between the active Air Force and Air National Guard, the systems mentioned above are operating, and may continue to operate in the out-years, hampered by the lack of critical support equipment. This will negatively impact our war fighting capability until resolved.

The Air National Guard has several other areas where outdated or nonexistent equipment limits our combat effectiveness. Communications equipment is one of the areas that cause the most concerns. The lack of standardized communications equipment and the need to accept less than optimum capability in combat communications will not be resolved until modern equipment, such as that being provided through the joint DoD TRI-TAC program, is made available to Air National Guard Combat Communications units. Due to the obsolescence of much Air National Guard combat communications equipment, interoperability with US and allied forces would be extremely difficult. The major focus of concern is still the need to ensure upgrade of equipment from the existing vacuum tube technology to state-of-the-art digital technology.

The importance of this situation becomes particularly apparent when it is realized that 65 percent of the Air Force's combat communications capability is in the Air National Guard. Problems in this area also include the lack of secure radios for combat aircraft which is now a high Department priority. Accordingly, many communications requirements for FY88 and FY89 are at the top of our list of needs.

The list also contains many aircraft survivability equipment items including improved threat detection, flare and chaff dispensers, radar warning receivers, air-to-air missiles, etc. Without these upgrades Air National Guard aircrews are vulnerable to the current and future generations of Soviet weapons. These survivability enhancements provide the most effective, least expensive way to expand/preserve the combat force. Dollars spent to cut losses in the high threat air battle improve our capability to regenerate the force for follow-on combat sorties. In short, they are force multipliers.

The Air National Guard continues with modernization of its tactical airlift assets as a top priority to improve combat effectiveness. However, three Air National Guard units are still flying 30-year-old, hard-to-support C-130As. Additionally, the C-130H fleet could go to war short of aircraft because no backup aircraft inventory (BAI) is currently available to fill the gap during normal periodic major overhauls of combat aircraft. The Congress has also asked the Air National Guard to increase participation in law enforcement's fight against illegal drug traffic. The extra C-130 airframes to support this added mission are not available. In FY88, $238.0 million dollars would procure 12 new C-130Hs to begin fixing these problems. In FY89, $242.0 million would be required for 12 additional aircraft.

Another aircraft obsolescence problem is found in Aerospace Rescue and Recovery units at Naval Air Station, Moffett Field, California, and Suffolk County Airport, New York. They are tasked with combat rescue on the modern battlefield but are flying HH-3 helicopters of pre-Vietnam vintage. These old helicopters are rapidly becoming unsupportable. Parts are scarce, and failures are frequent. The Air National Guard needs combat rescue unit modernization. The MH-60G is being procured for other Air Force rescue unit modernization. Under current plans the Air National Guard will not receive new MH-60s until the mid-1990s unless Congress funds them earlier. MH-60Gs and support equipment would cost $88.0 million.

Aircraft modifications are also high on the list of ANG needs. The Air National Guard supports the Air Force plan to modernize the A-7 fleet as a viable and economically sensible way to improve present tactical air support survivability and combat effectiveness, and to help meet future Close Air Support/ Battlefield Air Interdiction requirements. With airframe modifications, updated avionics and a modern technology engine the A-7 could meet the majority of Total Force tactical air support requirements into the 21st century. A modified A-7 would provide fixed-wing, day or night, under-the-weather combat capability in a high-threat environment. The aerodynamic prototyping initiated by the Congress last year needs $20 million for research and development in FY88. Also required are $44 million in FY88 and $58 million in FY89 in procurement funding for avionics and systems integration, logistics and support equipment to initiate a low-rate production program required to meet the needed Initial

Operational Capability. Funding support of this important modernization program for the aircraft at 14 Air National Guard A-7 units is needed.

The items listed below are directly related to combat-essential and high-priority equipment shortfalls. They do not represent the Air National Guard's total equipment requirement, but only the most urgently needed FY88 and FY89 procurement funding.

Mobile Tactical Communication Centers (MTCC): MTCC will replace obsolete 1950-1960 vintage TGC-20 telecommunications center equipment in combat communications units. The MTCC, unlike the TGC-20, will be capable of interface with TRI-TAC system digital equipment. $11.2 million are required in FY88 and $8.6 million in FY89.

Troposcatter Wideband Radios (TRC-170): TRC-170s will replace obsolete 1950-vintage wideband equipment in Air National Guard combat communications units that are rapidly becoming logistically nonsupportable, and are not compatible with digital TRI-TAC systems. Additionally, this funding will be used to accelerate procurement of systems otherwise not available in Air National Guard units for several years. $23.8 million per year are required in FY88 and FY89 to procure 11 TRC-170s annually.

Satellite Terminals (TSC-94A): Satellite communications (SATCOM) equipment represents a new capability in Air National Guard communications units. This funding will procure 9 TSC-94s per year--$9.0 million in FY88 and $9.0 million in FY89. SATCOM capability is required to support missions recently assigned to the Air National Guard communications force structure.

Mobile Control Towers and TACANs: The latest combat communication force structure changes established requirements for increased Air Traffic Control support, which will be integrated into existing Air National Guard combat communications units. $13.0 million and $3.9 million will go for Tactical Aides to Navigation (TACANS) to equip these units for their new mission.

EC-130E Radio Upgrade: This radio equipment is needed for compatibility with the current Class V combat modification to the EC-130E. $5.0 million are required in FY88 to replace obsolete medium and very high frequency transmitters. Current transmitters were designed in the early 1960's and are weight and power intensive. New technology will provide a greater mean time between failure rate, less heat generation, vendor supportability and reduced weight.

RF-4C Multiband Radio: This additional radio adds a VHF capability for interoperability with Army units and air traffic control facilities at European and civilian airfields. $1.0 million per year are required in both FY88 and FY89.

KY-58 Secure Voice Units: The Department of Defense requires secure voice capability for combat aircraft. Air National Guard A-7 aircraft have been partially funded by the Air Force to receive the KY-58 radio. An additional $1.3 million are needed in FY88 to complete procurement of secure voice units that will shield VHF and UHF transmissions between A-7s and the Army units they are supporting.

ARC-190 HF Radios: $1.7 million in FY88 are required to modify Hawaii Air National Guard F-15 aircraft with HF radios. These radios will permit long range command and control of over-water intercept operations that are not possible with UHF and VHF systems. These funds will also procure HF radios for A-7 aircraft to use for "nap of the earth", extremely low altitude combat communications. In the Close Air Support mission, aircraft must remain below enemy defenses in order to avoid detection and acquisition by hostile weapon systems. Conventional communication systems will not transmit long range at low altitude whereas a HF radio will.

ANDVT Secure Voice Units: In FY89, $1.9 million are required to provide secure voice capability to ARC-190 HF radios.

F-15 and F-16 Chaff/Flare Capability Enhancement: Adds four chaff/flare dispensers to the F-15s and four more dispensers to the two now on F-16A/Bs being transferred to the Air National Guard. USAF has validated the need for increased flare capability, and has made a decision to incorporate the upgrade during production of new F-16 aircraft, but has not yet provided for retrofit of older Air National Guard F-16s. The Air National Guard is also being provided F-15s from active duty F-15 training assets which are not currently equipped for self defense. The Air Force enhancement program for the F-15 is to procure the ALE-45 for installation on Air National Guard assets beginning in FY92, if funded. However, this survivability modification should be accomplished as soon as possible. $5.1 million in FY88 and $2.8 million in FY89 are required to begin enhancing the chaff/flare capability of the Air National Guard's fleet.

ALR-69 Procurement (EC-130): This equipment provides threat detection and identification for a chaff/flare employment decision (self-protection measure) by the aircrew in these Special Operations Force (SOF) aircraft. The ALR-69 gives the EC-130 360 degree radar detection of hostile intruders. $2.5 million is required in FY88 to enhance the survivability of the EC-130.

A-10 ALR-69: $4.2 million are required in FY89 to procure ALR-69s for the last 26 Air National Guard A-10 aircraft that are now equipped with the old ALR-46. The ALR-69 is a threat detection receiver used to combat most current and projected enemy offenses. It far exceeds the ALR-46 in capability and will replace this unit as funds are made available.

Electronic Countermeasures (ECM) Pods: The Air National Guard possesses no modern ECM pods. The few pods owned by the Guard are not adequate against the sophisticated Soviet threat. The Air Force recognizes this as a universal problem of the fighter force and has begun procurement of highly capable ALQ-131 and ALQ-189 pods for the tactical fighter force. The limited availability of funds and the high unit cost of these pods have continually delayed their projected availability to the ANG. This is a matter of combat survivability. Air National Guard units need to be equipped concurrently with their Active counterparts when they share similar mission taskings. $12.0 million per year are required in FY88 and FY89 to begin procuring 10 completely new ALQ-184 pods per year for Guard fighter units.

ALE-40 Chaff-Flare Programmer for the RF-4C: A programmer is required to allow flare and chaff dispensing in sequence with the threat and without conflict with the reconnaissance mission. The manual method now employed is not effective. This is a low cost, high pay-off Air Force program which has been slipped. $1.0 million are required in FY88 and $0.5 million in FY89 to equip Guard RF-4C aircraft now.

Head Up Display (HUD) for the RF-4C: The HUD enhances day and night mission accomplishment, decreases head-in-cockpit time, thus increasing safety and effectiveness in the very dangerous, low altitude regime. It also provides air-to-ground target cueing and defensive air-to-air cueing. This is an essential survivability modification that increases combat capability as an added benefit. $4.8 million in FY88 and $3.5 million in FY89 are required.

A-7 Night Vision Helmet: $1.0 million in FY89 will fund procurement of the Integrated Night Vision System (INVS) helmet developed by the Navy. The INVS can be worn during ejection and used for night escape and evasion while night vision goggles cannot. Night vision devices are essential for low-altitude night combat.

C-130 Support Equipment: This additive ground support equipment is required to operate and maintain C-130A aircraft being assigned as replacements for C-131 support aircraft. These items provide the minimum organizational level equipment needed to support single C-130A operations at individual unit locations. $3.5 million in FY88 and $1.6 million in FY89 are required.

KC-135E Support Equipment: This equipment is needed to support KC-135E operations at Eielson AFB, Alaska. It fills a common support equipment (CSE) shortage caused when Little Rock AFB retained CSE to support C-130E aircraft operations and transferred their KC-135Es to Alaska. $0.3 million is required in FY88 to fix this shortfall.

Battle Damage Repair Tool Kits: $2.9 million in FY88 will fund tool kits necessary for the rapid repair of battle damaged aircraft. These kits are essential for sustained combat operations.

TF-34 Engine Diagnostic Equipment: Air Force Logistics Command has indicated a funding shortfall for the purchase of TS-34 Engine Diagnostic Equipment used to evaluate engine operating data at A-10 units. $0.3 million per year in FY88 and FY89 will procure the diagnostic equipment for five ANG A-10 units.

J-85 Engine Maintenance Set: This set includes a Fuel Nozzle Test Stand, Compressor Balancing Set, and Fuel System Test Set. This equipment will significantly enhance OA-37 unit organic capability to perform compressor rotor maintenance and overhaul. $0.4 million are required in FY88 for a compressor balancing set to be used in a centralized J-85 compressor overhaul facility, and fuel system and nozzle test sets to replace outdated local manufacture items.

ANTPT-5 Radar and Support Equipment: Twelve target emitter systems are needed to allow aircrews to practice threat recognition and avoidance. This shortfall and combat training requirement can be met by $0.1 million in FY88 and $0.1 million in FY89.

Fighter Video Recorder's: Gun camera systems have been an integral part of fighter weapons systems since before World War II. The omission on current fighters has been identified as a problem. $6.1 million in FY88 and $7.3 million in FY89 are required to continue systems procurement for A-7, A-10 and F-15 aircraft.

Improved Aerial Gunnery Target Sets (IAGTS): Towed targets are an essential element in air-to-air gunnery training. IAGTS is an advanced tow target that provides improved, real-time scoring capability, is reusable and is compatible with many fighters, including the F-16. Stocks of the older AGTS-33 towed target are expected to be exhausted by the end of FY88. $3.5 million in FY88 funding are required to procure IAGTS for Air National Guard fighter and interceptor training.

Air Combat Training Equipment: About 50 percent of Air Force air combat training annual sortie requirements are accomplished on Air Combat Maneuvering Instrumentation (ACMI) ranges, while the Air National Guard uses ACMI facilities to meet only 30 percent of its air combat training requirements. The Air Force Chief of Staff; the Director, Air National Guard; and the Congress have agreed ACMI ranges and similar air combat training enhancement systems will fill an important shortfall in air combat training for the Total Force. In FY86 and FY87 Congress funded ACMI systems and tie-ins for southeastern and northern Air National Guard units. $13.6 million in FY88 and $6.8 million in FY89 would equip two southwestern fighter units and one Gulf Coast unit with a Debriefing and Display System (DDS), analysis and display equipment, and ground-link them into existing ACMI ranges. The DDS equipment will provide enhanced quality, real-time monitor and immediate post-flight debriefing and mission critique to users for about one-fourth the cost of a full ACMI range. The 159 Tactical Fighter Group, NAS New Orleans, Louisiana, and the 162nd Tactical Fighter Group, Tucson, Arizona, would receive DDS projects funded in FY88 and the 163rd Tactical Fighter Group, March AFB, California, with FY89 funding.

Microwave Weather Radar Receivers: $0.6 million in FY88 would procure weather radar receivers for ANG Weather Flights (WFs). These receivers would significantly improve a WF's ability to provide accurate and timely meteorological support to its assigned Army unit and will allow WFs to more accurately predict and track severe weather in a tactical combat environment.

Medical Equipment: Funding would provide medical X-ray equipment, X-ray processors and Panographic Dental X-ray sets for medical units. $0.2 million per year in FY88 and FY89 are needed to continue filling Air National Guard medical equipment shortfalls.

C-5A Malfunction Detection Analysis and Recording System (MADARS II): The C-5B production aircraft have a greatly improved Malfunction Detection Analysis and Recording System. MADARS II is planned for retrofit into active C-5A aircraft. The Air National Guard is receiving C-5As at Stewart IAP, New York, that are not scheduled for procurement of this system until FY90. $9.6 million per year in FY88 and FY89 would allow acceleration of this modification. Greatly improved maintenance and significant flight safety advantages would be realized.

The following table summaries the Air National Guard's most pressing FY88 and FY89 modernization and shortfall equipment requirements (FY88 $ in Millions).

Aircraft	FY88	FY89
C-130H (12)	238.0	242.0
MH-60Gs (12)	88.0	-
A-7 + Modification	64.0	58.0
Communications		
Mobile TAC Comm Centers	11.2	8.6
TROPO Radios (11/yr)	23.8	23.8
Satellite terminals (9yr)	9.0	9.0
Mobile Control Towers	13.0	-
Mobile TACANS	3.9	-
EC-130E Radio Mod	5.0	-
RF-4C Multiband Radio (VHF,AM)	1.0	1.0
KY-58 Secure Voice Units	1.3	-

ARC-190 HF radios (A-7, F-15)	1.7	-
ANDVT Secure Voice Units	-	1.9
Survival		
F-15/F-16 Chaff/Flare Capability	5.1	2.8
EC-130 ALR-69 RWR	2.5	-
A-10 ALR-69 RWR	-	4.2
ECM Pods (ALQ-184)	12.0	12.0
ALE-40 Chaff/Flare Programmer (RF-4C)	1.0	0.5
RF-4C HUD	4.8	3.5
A-7 Integrated Night Vision Helmet	-	2.0
Support and Combat Training		
C-130 Support Equipment	3.5	1.6
KC-15E Support Equipment	0.3	-
Battle Damage Repair Tool Kits	2.9	-
TF-34 Engine Diagnostic Equip	0.3	0.3
J-85 Engine Maintenance Set	0.4	-
ANTPT-5 Radar w/Support Equipment	0.1	0.1
Fighter Video Recorders	6.1	7.3
Improved Aerial Gunnery TGT Sets	3.5	-
Aerial Combat Training Equipment	13.6	6.8
Microwave Wx Radar Receivers	0.6	-
Medical Equipment	0.2	0.2
C-5A Malfunction Analysis System (MADARS II)	9.6	9.6
TOTALS	526.4	395.2

NAVAL RESERVE - The President's FY 1988 budget submitted a balanced program that provided for the highest priority equipment requirements of Total Force within tight fiscal constraints. If fiscal constraints are not a consideration, then the items listed below are our most pressing needs beyond those in the budget:

Issues In Priority Order	FY88 ($ Million)
Lamps MK-1 Block Upgrade (SH-2F)	20.0
A-6E Transition, NAS Atlanta, GA	8.2
FF Integrated Shipboard Tactical System (FFISTS) For NR FF 1052's	4.0
HM-19 Start-Up Support Equipment	2.4
FFG 7 AN/SQQ 89 Interoperability Upgrades	5.4
Cargo Handling Battalion (CHB) Equipment	4.5
Resforon Electronic Warfare (EW) Equipment	13.0
AMCM and Associated Mission Equipment	26.5
HH-60H HCS Helicopters	77.3
DC-9 Trade in Lieu of Modification	15.0
TOTAL	176.3

Naval Reserve Unfunded Equipment Impact

Lamps MK-1 Block Upgrade (SH-2F): $ 20.0 Million

The SH-2F block upgrade program is comprised of kits including new T-700 engines, advanced avionics and onboard acoustical processors, all of which greatly enhance this helicopter's antisubmarine warfare (ASW) capability. These four kits are needed to accelerate the block upgrade program for Naval Reserve SH-2F HSL helicopters.

A-6E Transition, NAS Atlanta, GA: $ 8.2 Million

A second A-6E squadron will be introduced to the Naval Reserve at NAS Atlanta in Fiscal Year 1990. Early stand-up of the squadron has created shortfalls in Intermediate Level Support

Equipment. The equipment will provide intermediate level repair capability for A-6E airframes, avionics, power plants, and miscellaneous components.

FF Integrated Shipboard Tactical System (FFISTS) for NR FF 1052s: $ 4.0 Million

FF 1052s (Active and Naval Reserve) do not have integrated systems to monitor and display all ASW sensors. FFISTS is an "Off the Shelf" system that accomplishes this integration using standard H.P. 9020 desk top computer and TV displays. FFISTS should be installed on all NR FF 1052s to enable them to train on this new system.

HM-19 Start-Up Support Equipment: $ 2.4 Million

The second Naval Reserve Airborne Mine Countermeasures squadron, HM-19, is scheduled to start up at NAS Alameda in FY89. Organizational and intermediate level maintenance support equipment, such as test benches and specialized tools, has not yet been programmed for this squadron. This equipment is critically needed to ensure the operational readiness of this squadron.

FFG-7 AN SQQ 89 Interoperability Upgrades: $ 5.4 Million

Provides the necessary shipboard equipment for combat system integration for Naval Reserve FFG-7s to achieve full LAMPS interoperability. Switchboard, combat direction system, and radar field changes are included.

Cargo Handling Battalion (CHB) Equipment: $ 4.5 Million

Provides equipment for Naval Reserve Cargo Handling Training Battalion (CHTB), Williamsburg ($2.7M) to conduct training of Reserve battalions and to be equipped for mobilization. Accelerates purchase of materials handling equipment for 12 NR Cargo Handling Battalions ($1.8M) to reduce wartime shortages.

RESFORON Electronic Warfare (EW) Equipment: $ 13.0 Million

EW Equipment is needed in the Naval Reserve Maritime Patrol (VP) squadrons to increase combat readiness. Electronic support measures (ESM) equipment is needed to enhance warfighting capability through state-of-the-art interrogation. Radar detection and targeting systems are also needed to replace obsolete ESM equipment in the Reserve P-3A/B squadrons.

- AN/ALR-66(V3) Over the Horizon (OTH) radar detection and targeting sets and wiring kits (25) for P-3A/B $ 9.9 Million
- AN/APX-76 radar interrogator Sets (35 for P-3A/B $ 3.1 Million

AMCM and Associated Mission Equipment:

Airborne Mine Countermeasures (AMCM) mission equipment such as the MK-105 mine sweeping sled and the AN/APN-217 doppler navigation set, which allows precise overwater positioning, is required to provide the two Naval Reserve helicopter mine countermeasures (HM) squadrons with full mission capability. A related program, the Naval Operating and Maintenance Aviation Deck (NOMAD), is required for these HM squadrons to operate aboard a Ready Reserve Fleet (RRF) merchant ship. Command and operations modules plus ancillary equipments are needed to outfit the first operational NOMAD unit.

- MK-105 mine sweeping sleds (2) = $ 7.0 Million
- AN/APN-217 doppler navigation sets plus installation (10) = $ 1.5 Million
- Modules, plus ancillary equipment, for one-half NOMAD installation = $ 18.0 Million

HH-60 HCS Helicopters: $ 77.3 Million

The HH-60H helicopter is designed to perform the dual missions of Combat Search and Rescue (CSAR) and Special Warfare Support (SWS). The two planned Naval Reserve Helicopter Combat Support Special (HCS) squadrons will be the Navy's only CSAR/SWS mission capable units. Procurement of six additional helicopters (three are included in the FY88 budget) would complete the program and provide full mission capability in this critical mission area two years earlier than projected.

DC-9 Trade in Lieu of Modification: $15.0 Million

There are four used DC-9 aircraft in the Naval Air Reserve that cannot be cost effectively modified to a mobilization (C-9B) configuration. Two are not structurally capable of being changed to the required 110,000 lbs. max gross take-off weight, and modifying the other two aircraft would cost more than the airplanes are worth. An unsolicated proposal has been received to trade used DC-9 cargo-capable aircraft for these passenger-only aircraft plus approximately $3.75M per aircraft.

MARINE CORPS - Many items are needed to expedite modernization of the Reserve. Funding could provide new capabilities or upgrade old capabilities in the Selected Marine Corps Reserve at a pace in advance of that programmed. Although the Reserve will be more "ready" in terms of increased capabilities (e.g., old M16A1 vs. new SAW M249 etc.) we may not show a commensurate increase in readiness because the readiness equation has four elements of which equipment is but one area.

If additional funds are available, a prioritized listing of the USMCR's most pressing requirements is provided for consideration.

ITEM	FY88 Amount ($ Million)
MK-19 40mm Machine Gun	1.8
Digital Communications Terminal, AN/PSC-2	16.6
Crane, RT, Heavy	1.0
Fuel Pump Storage	1.4
Simplified Test Combustion Internal Combustion Engine (STE/ICE)	.4
Rough Terrain Container Handler	.3
Super Single Tires	2.1
Container Family	
Pallet	9.1
Quadruple	8.6
Insert	1.5
Pallet Container Rack	.3
Quadruple Container Rack	.3
Air Conditioners 18000 BTU/60HZ (B0003)	.4
Forklift Attachment 10,000lb	2.8
Lightweight Decontamination System	1.8
Tactical Air Operations Module, AN/TYQ-23	26.4
Signal Generator	2.5
M4 Carbine	.6
TOTAL	$77.9

Impact of Marine Corps Reserve Unfunded Equipment

MK-19 MOD 3 Machine Gun: $ 1.8

An air-cooled, blow-back-type automatic gun that fires 40MM grenade rounds at a rate of 375 rounds per minute. This weapon will substantially increase the organic fire power of all Marine combat, combat support, and combat service support units. The decision to re-turret the Amphibious Assault Vehicle (AAV) with a new up-gunned weapons station (UPWS) has increased the acquisition objective for MK-19's one per vehicle. The operational decision to use the MK-19 as the weapon of choice in the tactical truck fleet for convoy security has increased our requirements by an additional 250 guns.

Digital Communications Terminal (DCT): $16.6

A hand-held programmable input/output unit used for composing, editing, transmitting, receiving, and displaying messages in conjunction with standard military radios. The terminal enables the user to transmit/receive messages in short digital bursts which minimizes risk of detection by decreasing "on-air" transmission time. The DCT will be employed by both mobile and static subscribers within the FMF, who have a requirement to provide source data to a tactical data or record traffic terminal. A primary means of communication essential not only within the Marine Corps between the actives and reserves, but also, essential to communicate with other services. Funding will accelerate the Marine Corps Reserve's capability requirement by at least one year.

Rough Terrain Heavy Crane: $ 1.0

A diesel powered full revolving, hydraulic crane designed to perform normal lift operations and cargo handling. It is equipped to operate with a pile driver, concrete bucket, and clamshell bucket. It will operate over paved roads, rough and improved terrain and sandy beaches. It is capable of operating in 60 inches of water, and will be a commercial item adapted for military use. It will replace the current 30 ton crane. These cranes will furnish the reserve additional capability over the current item which is overaged, and in short supply.

Fuel Pump Storage (SIXCON): $ 1.4

The SIXCON provides the capability to store, transport, and pump up to 900 gallons of water or fuel. SIXCON can be helo-lifted or transported aboard trucks and can be placed on container ships. The system is needed to replace the aging fuel blatter system in the inventory.

Simplified Test Equipment/Internal
Combustion Engine: $0.4

A portable test instrument which has built-in diagnostics for many of the family of engines used in the Marine Corps. In addition, it can be used in many other internal combustion, reciprocating engines to conduct routine maintenance or to troubleshoot. It is used primarily at the organization and intermediate levels. We have been critically short for four years. Currently inventories are approximately 20 percent of requirements. By accelerating this buy into FY 1988, 50 percent of the requirement will be met.

Rough Terrain Container Handler (RTCH): $ 0.3

The RTCH is a 50,000 pound, 4 wheeled, diesel driven engine container handler that will effectively load, unload, move, stack, and unstack 8' x 8' x 20' containers that will be used to resupply the amphibious force. This item provides a new capability to meet the current container handling requirement.

Super Single Radial Tires: $2.1

The SSRT is a modification to the 5-ton tactical truck which will be installed at the unit level to enhance cross-country mobility. Primary changes are in tire size and number, wheels and beadlocks. The SSRT, as demonstrated during testing, will provide a 2:1 increase in mobility when towing the M198 Howitzer. Funding will satisfy 27 percent of the total reserve requirements.

Container Family: $19.8

Will provide the Fleet Marine Forces with a fully intermodal transport capability emphasizing dimensional standarization and International Organization for Standardization compatibility which is vitally needed to facilitate expeditious handling and movement of equipment to include ship to shore movement.

Air Conditioners: $0.4

Replacement of overaged, wornout air conditioners on tactical equipment requiring environmental control such as electronic maintenance shops, radar systems, communications centers, and data computer.

10,000 lb Forklift Attachment: $2.8

Used with the Tractor, Articulated Steer (RCN 62381) to handle materials that weigh up to 10,000 pounds. The attachment will be used to replace current items which are overaged and in short supply.

Lightweight Decontamination System: $ 1.8

A mobile decontamination and cleaning system. In a NBC environment, it provides partial removal of nuclear, biological and chemical contaminants from personnel, vehicles, and equipment to allow continuing operations in reduced amounts of protective clothing. The system increases the capability to perform decontamination functions because it is a more portable (smaller) faster system.

AN/TYQ-23(V) Tactical Air Operations Module: $26.4

An Electronic Tactical Data System which (when supported by sensors, communications, power sources, support equipment, and personnel) will provide the Marine Corps with the capability of integrated air defense, supplemental enroute air traffic control and a data link to external agencies for real time tactical air data. This will allow us to buy in consonance with the regulars in the Total Force concept. If funded in FY 1988, the reserves will achieve a 50 percent attainment of requirements.

Generator Set, Signal AN/USM-323: $ 2.3

Generates radio frequency signals in the frequency range of 50 KHz to 512 MHz. It is used at all echelons of maintenance for operational and diagnostic testing. It is used to provide test stimuli for a wide range of receiver test applications and other applications within its capabilities. These funds will accelerate meeting the requirements for this item.

M4 Carbine: $ 0.6

Will replace selected pistols on a one-for-one basis. The weapon provides increased firepower, allows for the delivery of accurate fires, and makes possible effective patrolling, thereby, contributing significantly to the unit's survivability/mission accomplishment. The M4 carbine is designed for firing the new M855/M856 ammunition which is also used for the M16A2 rifle. This is a new program. This buy would give us 100 percent of our known requirements.

Question. What special equipment or personnel problems have accompanied modernization for the Reserve Components?

Answer. The increasing reliance of the Department upon the Reserve Components has resulted in significant expansion and growth in some Reserve functional areas in recent years. While many of the special problems that have arisen have not been fully resolved at this time, most have been identified and programs for their resolution have been or are under development. Some of the key problem areas are outlined below.

For the Air Reserve forces, the rapid distribution of F-15 and F-16s in recent years has created a significant shortage in aircraft support equipment. The shortfalls are based in the force structure differences between Active and Reserve units. The Active force has 72 aircraft at each wing that share two sets of support equipment. Assignment of these aircraft to the National Guard and Reserve may result in distribution to units at multiple locations. This results in a shortage of support equipment at all locations. These shortages must be resolved through subsequent procurement. Similar problems exist as the C-5A and C-141B strategic airlift aircraft are transferred to Reserve units. Active units are not being deactivated and existing support equipment is still required by Active Component bases. Hence, equipment needed to support Reserve aircraft must be procured.

The Naval Reserve has a comprehensive, steady modernization program. There are, however, some special problems regarding support equipment for the pending transition to and beddown of A-6E aircraft at NAS Atlanta. A similar shortage of start-up support equipment exists for the two new Reserve Airborne Mine Countermeasures (AMCM) squadrons.

The current Marine Corps construction backlog for exclusive use Reserve facilities exceeds $105 million and is considered a significant obstacle to the introduction of new equipment. Although the age of existing facilities contributes to this backlog, the introduction of new equipment and new missions creates an increased demand for the modernization and expansion of the Reserve facilities plant.

A significant personnel problem for the National Guard and Reserve during on-going modernization and force structure expansion activities is to provide appropriately trained personnel to operate and maintain newly distributed equipment. Personnel training often requires attendance at formal schooling for qualification. This involves significant time away from normal civilian occupations and much advanced planning and scheduling. Any scheduling difficulties/delays, for whatever reason, hamper unit effectiveness and lower readiness ratings. In order to provide the requisite training and make the most efficient use of scarce, modern equipment, the Army has established, for example, a number of regional maintenance training centers. These centers provide training to soldiers whose wartime mission makes them responsible for maintaining and operating equipment not authorized for that unit. Additionally, the minimum essential equipment for training program was initiated to remedy equipment shortages that impair unit training in late or nondeploying units.

Full-time support authorization levels are also a special problem. The transfer of units and missions from the Active force and/or the stand-up of a new required capability in the Naval Reserve, instead of in the Active force, does result in a net saving of Active duty end strength. However, there are also attendant requirements for additional Reservists on full-time active duty to support these new missions, ships, squadrons, and other hardware units. Requisite increases in full-time support end strength is badly needed to fully support these activations/ transfers. Failure to provide the necessary growth since Fiscal Year 1986 has resulted in insufficient full-time support personnel to maintain increasingly complex systems and equipment or to support the overall growth in the Navy's Selected Reserve.

Question. The FY 1986 Annual Report of the Reserve Forces Policy Board notes the Army Reserve and Army National Guard lag far behind the other Reserve Components in wartime required equipment and spare parts. Why are the Army Reserve Components so far behind?

Answer. The Army Reserve Components equipment status is representative of an overall Service problem. The Army began its modernization program later than the other Services and now faces a problem of significantly different form and dimension from that of the other Services. Because of the magnitude of the requirements and despite the substantial resources provided to the Reserve Components, procurement resources have simply not been adequate to simultaneously fill existing shortages, acquire modernization items, and fully equip an expanding Reserve Component force structure. The Army leadership is aware of the equipment shortfalls in the Army Reserve Components and has underway a number of initiatives to ensure a more optimum distribution of available Army equipment resources. However, because of the magnitude of the problem and the expected limited availability of resources, early resolution of the Army Reserve Components' equipment shortfalls is not foreseen. Assuming that the President's FY 1988/89 Budget request is approved and Army distribution plans are executed as now envisioned, data contained in the FY 1988 National Guard and Reserve Equipment Report indicates that eliminating the remaining shortfalls and replacing substitute equipment would require an additional investment of approximately $10 billion. Operations and maintenance resources provided to the Army Reserve Components represent an equitable allocation of resources available to the Total Army. However, this allocation of resources is also insufficient to support day-to-day operations and at the same time eliminate shortages in repair stocks and stocks to support combat operations.

GENERAL EQUIPMENT

QUESTION. Commencing in FY 1987, the Army National Guard becomes a major recipient of Mobile Subscriber Equipment, the Army's new unit communications system. How does the Army Guard plan to deploy and train personnel with M.S.E.? What impact will delivery of M.S.E. have on Army Guard Communications?

ANSWER. The ARNG fielding and training of MSE will be identical to that of the Active Components. Modifications will be made to the training timetables to allow ARNG units to receive continuous training during inactive duty training (IDT) periods. Equipment to ARNG Signal units will be fielded simultaneously with Active Signal units on a by-Corps basis. Fielding in this manner will permit the Active Component and ARNG units to maintain communications compatibility during the transition to the new equipment. The fielding schedule for MSE is as follows:

CORPS	FIELDING DATES
III	February 1988 - February 1990
V	March 1990 - December 1990
VII	January 1991 - December 1991
XVIII	December 1991 - November 1992
I	December 1992 - October 1993

The delivery of MSE to the ARNG will enhance its readiness posture and make the ARNG compatible with Active units.

Funding for Deployable Medical Systems

QUESTION. Funding for Deployable Medical Systems (DMS) for the Army Reserve is requested to increase by 50% from FY 1987 to FY 1988. Last year Congress sharply reduced this activity due to delays in procurement and deployment of existing stocks. Why has the Army doubled this activity for FY 1988? What is the existing backlog of DMS sets remaining to be deployed? What impact would no funding in FY 1988 have on this program?

ANSWER: Deployable Medical Systems (DEPMEDS) is an equipping program by the Army Medical Department to equip previously unequipped deployable hospital units. Medical equipment shortages were identified as a war stopper during the 1982-83 time frame. Procurement began in 1984 and is scheduled through 1991. A total of 156 DEPMEDS Hospital sets are scheduled for procurement for the total Army of which 94 of these are for the Army Reserve. DMS is a line item in the DEPMEDS PDIP that covers all non-medical OPA procurement dollars. In 1987 $88.8 million was originally programmed for DMS. Congress imposed a cut of $52.2 million for the stated reasons. The final FY 87 funding line for DMS was $36.6 million. In 1988 $82.8 million is programmed for DMS. Whereby this is a significant increase over the final FY 87 DMS funding line of $36.6 million, it is actually less than the originally requested $88.8 million in FY 87. The FY 87 DMS fund line reflects a congressionally imposed cut. The FY 88 request restores the program to the original funding stream.

Of the 94 DEPMEDS Hospital sets scheduled for the USAR, sufficient procurement has occurred to meet the fielding scheduled through FY 90. This includes 1 unit in FY 87, 15 units in FY 88, 14 units in FY 89 and 12 units in FY 90. Fielding of the remaining 52 USAR Hospital units will be stopped completely or severely hampered if no funding is forthcoming in FY 88. This in turn will stop the Army Medical Department from fielding sufficient hospital beds to meet mission requirements. To reduce or eliminate DEPMEDS funding at this time will stop the fielding of DEPMEDS, prolong the procurement and fielding times and leave the Army without sufficient medical support in the event of mobilization.

EQUIPMENT

QUESTION. The Army Reserve requests $29.7 million in FY 1988 for the 65 Ton Crane. What is the requirement for this equipment? The House Armed Services Committee has proposed reducing funding for this item. What impact would this reduction have on the 65 Ton Crane program? Is this crane a commercial item, or is it being specifically designed for the Army?

ANSWER. The 65 Ton Crane is an integral part of the Army's Logistics Unit Productivity System (LUPS) program. It will replace the current 20 Ton Crane and 50,000 pound Rough Terrain Container Handler in general support ammunition companies, terminal service companies, and cargo transportation companies. The 65 Ton Crane will increase the daily unit lift capability of general support conventional ammunition units by 10 percent (369.6 short tons).

The proposed House Armed Services Committee reduction in the amount of $9.8 million should have no impact on the quantity of 65 Ton Cranes designated for USAR units. That amount represents savings achieved in the actual contract price.

The 65 Ton Crane is a commercial item, it is not being specifically designed for the Army.

TRAINING AMMUNITION FOR AIR NATIONAL GUARD

QUESTION: Funding for Air National Guard 20 mm and 30 mm Training Ammunition is reduced by 20% for FY 1988. Does this reduction mean less training for Air Guard units. What is the actual requirement for training ammunition for the Air Guard?

GENERAL CONAWAY: The reduction in funding between FY 87 and FY 88 President's Budget for 30mm training ammunition will not adversely impact Air Guard training. While the funding between FY 87 and 88 decreases 20%, the quantity of ammunition procured decreases by only 3%.

The reduction in funding for 20mm training ammunition over the same two years will impact training, but by careful allocation and some utilization of peacetime pipeline stock levels, degradation of combat readiness ratings may be avoided. The availability of 20mm training ammunition based on FY 87 and 88 funding and ammunition contract deliveries will be approximately 7.0 to 7.5 million rounds in the CY 88 and 89 training periods with the Air Guard receiving 45% of the total, equaling 3.15 to 3.375 million rounds per year. This availability represents 83% of annual stated requirements (4 million rounds).

AIR NATIONAL GUARD BUDGET FOR TRUCKS

QUESTION: The Air National Guard requests $10.6 million for 2 1/2 Ton Cargo trucks. Does this request respond to a new requirement or to replace assets due for retirement? What is the current average age of the Air Guard truck fleet? What are the Air Guard's top priorities for vehicle replacement?

GENERAL CONAWAY: Air National Guard 2 1/2 ton cargo trucks are required for replacement of existing mobility equipment required to deploy during war. More than half of the fleet (909 trucks) currently exceed the Air Force established life expectancy of 15 years. Another 160 trucks need replacement within two years (i.e. they are over 13 years old). Estimated current average age of all 2 1/2 ton cargo trucks is 15 years. The Air Guard's top priorities for vehicle replacement are:

(1) Refueling Equipment
(2) 2 1/2 ton cargo trucks
(3) 10,000 lb forklifts for aircraft loading
(4) Runway clearing equipment (snow removal and sweepers)

RUNWAY CLEANING EQUIPMENT FOR AIR NATIONAL GUARD

QUESTION: The Air National Guard requests $10.0 million for runway clearing equipment. Which locations are scheduled to receive this equipment, and what is the average age of the runway clearing equipment to be replaced?

GENERAL CONAWAY: Locations scheduled to receive runway clearing equipment through FY88 are listed below. This includes snow plows, blowers, sweepers, and runway vacuum sweepers.

Of the 116 pieces of runway clearing equipment requiring replacement now, 81 have exceeded their life expectancy, which averages 7-13 years depending upon equipment type. The average age of the remaining equipment requiring replacement is approximately 10 years.

Otis ANGB MA
Alpena MI
Stewart Aprt NY
Kingsley Fld OR
Anchorage AK
Westfield MA
Great Falls MT
McGuire AFB NJ
Suffolk City NY
Mansfield OH
Sioux Falls SD
Charleston WV
Martinsburg WV
Selfridge ANGB MI
Forbes Fld ANG KS
Springfield OH
Bangor ME
Gulfport MS
Boise ID
Terre Haute IN
Salt Lake City UT
Schenectady NY
Niagara Falls NY
Madison WI
St Joseph MO
Ellington ANGB TX
Nashville TN
Peoria IL
Cheyenne WY
St Paul MN
Rickenbacker ANGB OH
Duluth MN
Harrisburg PA
Buckley ANGB CO
Chicago IL
Knoxville TN
Springfield IL
Savannah GA
Willow Grove PA
Moffett CA
Dallas TX
Milwaukee WI
Baltimore MD
Lambert Fld MO
Pittsburgh PA
Syracuse NY
Volk Fld WI
Pease AFB NH
Burlington VT

TOTAL FORCE POLICY

Question. Assistant Secretary Shaw, former Chief of Staff General Meyer recently stated in the press that "the noodle has been pushed up the hill about as far as it can be in turning over new missions and functions to the Guard and Reserve."

Do you agree with General Meyer's observation?

Answer. I acknowledge the extensive dependency upon the Guard and Reserve, particularly in certain mission areas. However, I don't believe this dependency is excessive. The degree of dependency is predicated on the Guard and Reserves' demonstrated capacity to perform the missions with which they are entrusted. Most major shortfalls in the Reserve components fall in the area of equipment. These shortfalls must be addressed with resources and management actions to ensure that the battlefield capacity of the Total Force--Active, Guard and Reserve--is sufficient to execute the goals and objectives of our national strategy.

Question. How ready and how capable are the Guard and Reserve components, today, to carry out the missions assigned to them? What factors are the most critical in maintaining and further improving readiness?

Answer. The personnel and units of the seven Reserve components constitute a first class fighting force that contributes to our worldwide military responsibilities on a daily basis. Army Guard and Reserve, Air Force Guard and Reserve, and Navy, Marine Corps, and Coast Guard Reserve units are involved in both operational and training missions that range from exercise participation to around-the-clock air defense of the Continental United States and Hawaii on a year-round basis. The willingness and the ability of reservists to respond promptly in times of crisis were demonstrated in Grenada and Lebanon and are demonstrated almost daily in the Army and Air Guard's response to domestic disasters and emergencies.

Most major shortfalls in the Reserve components fall in the area of equipment. These shortfalls must be addressed with resources and management actions to ensure that the battlefield capacity of the Total Force--Active, Guard and Reserve--is sufficient to execute the goals and objectives of our national strategy.

The Reserve components would be ready and capable to satisfy their mobilization mission provided they are properly resourced --equipped, manned, and trained.

TOTAL FORCE POLICY

QUESTION. General Temple, a Guard or Reserve "roundout" brigade's annual cost for personnel and operations is only about 1/4 active brigades in the same division. Wouldn't you agree that the taxpayer is getting a good return for the dollar with the "roundout" associations? Why doesn't the Army develop more Roundout associations?

ANSWER. I agree. Roundout associations are an efficient and effective use of resources to accomplish specific missions. Roundout units are organized to complete an under-structured active component unit. The objective of the training association is to ensure the reserve component unit is able to deploy and accomplish its wartime mission. RC units designated as roundout will be assigned a priority for allocation of resources equal to that of the AC sponsor unit. The Deputy

Chief of Staff for Operations and Plans (ODCSOPS) identifies roundout requirements; after coordination with Forces Command, the National Guard Bureau, and the Army Reserve, the ODCSOPS selects units to fill these requirements bases on the needs of the service.

Question. General Ward, a Guard or Reserve "roundout" brigade's annual cost for personnel and operations is only about 1/4 active brigades in the same division. Wouldn't you agree that the taxpayer is getting a good return for the dollar with the "roundout" associations? Why doesn't the Army develop more Roundout associations?

ANSWER. The Army Reserve currently has 32 units in the Roundout program and is expected to increase this number to more than 60. This includes Military Intelligence units for 90 percent of the Army National Guard's divisions, separate brigades, and armored cavalry regiments as well as for Active Component combat units. The largest of the Army Reserve current roundout units is the 205th Infantry Brigade, headquartered at Ft Snelling, Minnesota. The Deputy Chief of Staff for Operations and Plans (DCSOPS), in coordination with the Chief, Army Reserve and Commander, Forces Command, selects units for roundout, based on existing requirements to complete the force structure.

TOTAL FORCE POLICY

QUESTION. General Burdick, how compatible are Guard command, control and communications with the active forces? Are communication equipment and management information systems compatible? How does the situation look for roundout units?

ANSWER. ARNG command, control, and communications are compatible with Active Forces. Doctrine is standard, and the recent fielding of tactical multichannel radio systems to the ARNG has enhanced the ability of the ARNG and Active Component units to communicate.

Roundout units are given the same priority of equipment fieldings as their Active affiliation unit. Therefore, modernized types of equipment in the proper quantities enables the Roundout units to effectively accomplish their missions.

Total Force Policy

QUESTION. General Ward, please provide a status report on the mobility and transportation picture for the Reserve forces. Is the airlift and sealift available to get Army Guard and Reserve Forces to their wartime required destinations?

ANSWER. Transportation and mobility requirements, namely airlift and sealift, are developed to meet total force requirements for all Services. Army Reserve forces are only a portion of the total wartime requirement for lift. A detailed report on Mobility is contained in the United States Military Posture FY 1988 on pages 69-72. The primary purpose of this document, prepared by the Joint Staff, is to supplement testimony by the Chairman and other members of the Joint Chiefs of Staff at Congressional hearings in support of the Fiscal Year 1988-89 Defense Budget. Currently, critical shortfalls exist for both airlift and sealift to meet required overseas delivery dates. Navy and Air Force mobility programs are addressing these shortfalls. By the end of the program year 1992, shortfalls will still exist. Key programs are the C-17 aircraft program, the Ready Reserve Force ship fleet, and the container ship modification program. The most significant mobility problem is the rapid decline in the capability of the U.S. Merchant Fleet which the Department of the Defense has traditionally relied on for its wartime shipping needs.

QUESTION: Admiral Kempf, please provide a status report on the mobility and transportation picture for the Reserve forces. Are the airlift and sealift available to get Army Guard and Reserve Forces to their wartime required destinations?

ANSWER: All transportation of Naval Reserve forces for mobilization development, as for the other services Reserve forces, is provided by the joint transportation commands, now unified under the U.S. Transportation Command (USTRANSCOM). We believe the ability of that command to meet its mobilization movement requirements for Naval forces continues to improve, but specific details on their capacity to meet lift requirements must be sought from that command or the Joint Chiefs of Staff.

As for Navy organic airlift, the majority of which resides in the Naval Reserve, our mission is to provide wartime intra-theater operational support. A March 1986 study by the Center for Naval Analyses on Navy organic airlift requirements recommended increases in the number of heavy-to-medium transport aircraft. We are reviewing this study, and shortfalls will be addressed in the programming/budgeting process.

STATUS OF AIR FORCE RESERVE MOBILITY AND TRANSPORTATION

QUESTION: General Scheer, please provide a status report on the mobility and transportation picture for the Reserve forces. Are the airlift and sealift available to get Army Guard and Reserve Forces to their wartime required destinations?

General Scheer: Sufficient transportation is available to eventually get Air Force Reserve units to their wartime required destinations. However, some units would not arrive as early as the CINCs would like. That is why procurement of mobility assets such as the C-17 is vital.

TOTAL FORCE POLICY

QUESTION. What percentage of Army Guard equipment is prepositioned overseas?

ANSWER. As of 1 Jan 87, the Army National Guard had 2.6 percent of the total dollar value of equipment on-hand, overseas in POMCUS projected as of the end of FY 87.

SPECIAL OPERATIONS FORCE ORGANIZATION AND FUNDING

QUESTION. Assistant Secretary Shaw, how are the Guard and Reserve being integrated into the newly created Special Operations Force (SOF) Command? Does the 1988 budget request provide all the funds necessary to fully achieve the Guard and Reserve role in the new Command?

ANSWER. Under the Department of Defense Reorganization Act a Special Operations Forces Unified Command has been created to manage special operations forces Active, Guard and Reserve stationed in the United States. The Department of Defense is in the process of developing agreements which will establish the operational relationships between the Special Operations Forces Unified Command and the reserve components, including methods to highlight equipment, manpower, and training requirements.

The FY 1988/89 President's Budget accurately reflects the Reserve Component Special Operations Force requirements.

ARMY OPERATING TEMPO COMPUTATION

QUESTION. Please provide a chart that compares operating tempo factors for each of the reserve components vis-a-vis their active counterparts (e.g., Army Guard UH-1 hours per crew per month vs. Army UH-1).

ANSWER. Army Operating Tempo (OPTEMPO) provides a resourcing guide for intensively-managed modernized systems. The rates are expressed in terms of miles per year, hours per year, or other appropriate unit of measure per system. The Army OPTEMPO is developed during Operational Tests and further refined as usage experience is obtained. Flying hours are based on the time required to meet the training strategies for the MACOMs. The annual figures listed below are representative of the systems indicated.

Systems	AC	ARNG	USAR
Tank (M1)	850 mi	306 mi	213 mi
Armored Combat Earthmover M9	400 mi	144 mi	100 mi
Truck, 5 Ton, M939	2,000 mi	720 mi	500 mi
Hvy Expanded Mob Tact Truck (HEMTT)	3,000 mi	1,080 mi	750 mi
Flying Hours (per crew/annual)			
Helicopter, UH-1	222 hrs	126 hrs	119 hrs
Helicopter, CH-47	161 hrs	115 hrs	64 hrs

Navy OPTEMPO is expressed as Deployed and Nondeployed Fleet Steaming Days for surface forces and flying hours for aviation units. The USNR has ships only in the nondeployed category. OPTEMPO for the USN and USNR is developed by each component to support the operational mission and minimum training requirements. The aircraft listed are representative comparisons of the USN and USNR flying programs.

Fleet Steaming Days (per ship/annual)	AC	USNR
Nondeployed	116	84
Flying Hours (per crew/annual)		
FA-18	264	132
P-3	492	120
A-7	240	132

Air Force OPTEMPO or flying hour program is developed by each component. USAF develops requirements to meet operational mission and training to maintain deployable crews/aircraft. The USAFR and ANG develop their training programs to meet minimum flying requirements.

Flying Hours (per crew/annual)	AC	RES	ANG
Tactical Aircraft	234	148	114
Strategic Aircraft	220	182	137
Airlift Aircraft	366	138	151

RESERVE MISSION EUROPE

QUESTION. The 1987 Senate Appropriations Committee report tasked the Defense Department to develop a plan for establishing, at least on a test basis, a European-based reserve component mission which is capable of training selected members and units of the reserve components. The Committee recommended that a combat service support mission be selected.

Secretary Shaw, what is the status of this effort? Why hasn't the Department selected units that could be substituted with reserve forces?

ANSWER. Our response is in the final stages of coordination within the Department of Defense, and shall be submitted by Aug. 1, 1987. The overseas deployment training of Reserve component forces is an important part of maintaining the high state of readiness of Reserve and National Guard units. While we continue to emphasize such training, we are also faced with the stark reality of the limitations on reservists to make extended deployments and support missions on a unit rotation basis. Before we precipitate reserve force actions which may prove to be unsupportable in the long run, perhaps even harmful, the size and number of active units presently stationed in Europe must be determined as sufficient to sustain the peacetime commitments we have made to our Allies. Furthermore, the possible withdrawal of active forces, from Europe, and their replacement with reserve forces must not exacerbate those commitments or jeopardize our capability to reinforce Europe in wartime.

TRAINING HONDURAS

QUESTION. Secretary Shaw, if the Army Reserve and Guard can maintain a 500-man presence in Honduras to build roads, then why can't a similar sized support force be maintained in Europe?

ANSWER Our operations in Central America are dry season operations of about six months duration. Central America provides an excellent opportunity to accomplish training that is not otherwise available. The roads being built in Honduras are great for the purpose they serve, and offer our personnel superb training in rough terrain operations. At the same time, the training in Central America requires our men to give up operating from fixed installations and logistics support. Presently the closest fixed site support is a forty-five minute helicopter flight away. Operating in that environment is important training in its own right and cannot be duplicated in the United States or in Europe.

But aside from the weather, the reason Honduras is a six month operation is that we do not have enough units to operate any longer than six months. As I understand it, the question as it relates to Europe addresses a full-time presence. For most types of units, there is simply an insufficient number of units in the reserve components to permit a full-time presence. The Air National Guard experience in the Federal Republic of Germany is a good example. It took resources from 28 states to maintain an eight aircraft detachment at Ramstein.

TRAINING OF MISSION FORCE

QUESTION. General Ward, if the Army Reserve and Guard can maintain a 500-man presence in Honduras to build roads, then why can't a similar sized support force be maintained in Europe?

ANSWER. Force missions in Honduras differ from those in Europe. Training of Reserve Components in Honduras is accomplished with ten 17 day rotations and stays within the spirit of Title 38 of the employee/employer relationships. We have no active units permanently in Honduras. Europe has what is referred to as a real world mission as well as a constant training mission to maintain its readiness posture in a no fault environment. To rotate units every month in the European environment would be extremely risky in terms of maintaining rules of engagement and support activity but most importantly, maintaining continuity. Moreover, it would be extremely difficult, if not impossible, to equate a training exercise in Honduras with a combat service support mission in Europe. Honduras, having no major environmental constraints and a 2-3 week troop rotation with a small full time contingent, is totally different in concept to Europe which has a highly restrained environment where continuity is key. The cost alone of rotating units every 17 days would be prohibitive and not in line with current emphasis on cost reduction. In terms of dependents, this program would cause additional hardship on those remaining in Europe since commissaries,

PXs, schools and other facilities would be consolidated, reduced in service, and less accessible. Lastly, the General Accounting Office study of this program was forwarded by the Assistant Secretary of Defense (Reserve Affairs) to the Chairman, Subcommittee on Defense, Committee on Appropriation. The finding was that "the implementation of the proposed concept would result in an unwise use of scarce financial resources without any improvement in the defense posture of the nation."

GUARD AND RESERVE OVERSEAS

QUESTION. General Temple , if the Army Reserve and Guard can maintain a 500 man presence in Honduras to build roads then why can't a similar sized support force be maintained in Europe?

ANSWER. It is extremely difficult, if not impossible, to equate the circumstances of conducting a training exercise in Honduras with conducting an actual combat service support mission in Europe. First, the exercise in Honduras is precisely that--a training exercise. The 500 man "presence" consists of a small cadre, with the bulk of the personnel rotated every two weeks. Those personnel occupy temporary facilities erected in essentially wilderness areas where no enviromental constraints exist. The training exercise itself is conducted outside of environmental constraints. A situation in Europe would not be a training exercise and would face many environmental and pragmatic constraints and would require significantly more funds to accomplish.

A GAO study of this program was forwarded by the Assistant Secretary of Defense, Reserve Affairs to the Chairman, Subcommittee on Defense, Committee on Appropriations. The findings stated that "the implementation of the proposed concept would resut in an unwise use of scarce financial resources wothout any improvement in the defense posture of the nation."

EUROPEAN DISTRIBUTION SYSTEM

QUESTION: General Scheer and General Conaway, currently the European Distribution System (EDS) Program is justified as a wartime program which is exercised in peacetime to improve readiness, but primarily to keep pilots proficient. Do either of you believe EDS could become a reserve forces mission, exercised annually as part of a larger Reforger or similar surge effort?

GENERAL CONAWAY: We do not believe the European Distribution System (EDS) program should become an Air National Guard mission. The EDS program is an overseas mission and utilizes a unique aircraft, the C-23 Sherpa. There would be no way to keep our aircrews current and qualified in the states without stationing some aircraft stateside. The short range of these aircraft and the cost associated with an annual rotation of our people would not make this a cost effective mission for the ANG.

C-23 Pilots

QUESTION: I understand that although there are no Air Force

C-23 Sherpas stationed in the U.S., C-12 pilots can easily qualify to fly the C-23 and further that many commercial C-23s are owned and operated in the U.S. Are these assessments correct? How many commercial C-23 pilots are also members of the ANG and AF Reserve?

ANSWER: C-12 pilots can qualify to fly the C-23 after completing a 38 day, C-23 Initial Qualification Course, comprised of ground and flight instruction. Air Force does not maintain data on either commercial C-23s owned and operated in the U.S., or C-23 pilots who are members of the ANG or AF Reserve.

Guard and Reserve Overseas

Question. For the record, could each component provide a comparison of its structure, manpower, equipment and readiness with its NATO counterparts? How much training do the European reserves perform?

Answer. Such a comparison would not be valid. Our capabilities and those of our allies are additive and complementary, not competitive. Furthermore, the scope, missions, governing legislation, available resources, and national perspectives of our allies are sufficiently different from our own. The reserves in most NATO countries are manpower pools which augment their active forces when needed. Very few reserves are organized or trained as reserve units and few conduct annual training. In terms of the abilities of our allies, independent of a comparison, the Department of Defense provides two annual reports to Congress. These classified reports are titled: "NATO Conventional Defense: Assessments of Allied Performance in Selected Improvement Areas" and "The Readiness of NATO's Military Forces."

Information pertaining to performance of training by European reserves is provided in the above reports.

Guard and Reserve Overseas

QUESTION. General Ward, the CINCENT, General Crist, recently stated that (d) of the combat support and combat service support units assigned to the Central Command have significant equipment shortages. Is this accurate? Is it a significant problem? Does it reflect similar problems in other commands?

ANSWER. The portion of combat support and combat service support units cited by General Crist as having significant equipment shortages appears to have been accurate. The fact that such a high percentage of support units have significant equipment problems is of serious concern to the Army Reserve. Equipment shortages are also a long standing problem for Army Reserve units designated for assignment to other commands. However, Congressional initiatives in redressing equipment shortfalls in the reserve components coupled with changes in Army equipping strategy are reducing the impact of equipment shortages. For example, within the past year, additional equipment has been placed on order with funds set aside by the Congress to raise equipment status of an additional 145 USAR units from C-4 to C-3.

GUARD/RESERVE DEPLOYMENTS TO CENTRAL AMERICA

QUESTION. Secretary Shaw, how many Guard and Reservists (by component) were trained or deployed in Central America for FY 83, 84, 85, and 86? In which countries did they deploy to and what types of activities were they involved with? Please provide data on medical and other humanitarian assistance provided to the civil population in conjunction with these deployments.

ANSWER. The following is a summary of Guard/Reserve deployments to Central America:

Component	Year	Number of Pers Trained/Deployed	Country(s)
USAFR	FY83	1,019	Panama/Puerto Rico
	FY84	1,010	Panama/Puerto Rico
	FY85	2,216	Panama/Puerto Rico
	FY86	2,012	Panama/Puerto Rico
USNR	FY83	272	Panama/ElSalvador/ Honduras
	FY84	494	Panama/El Salvador/ Honduras
	FY85	814	Panama/Honduras/ Costa Rica
	FY86	756	Panama/Honduras/Columbia
USCGR		None	
USMCR	FY83	None	
	FY84	90	Honduras
	FY85/86	None	
ANG	FY83	2,900	Panama/Honduras
	FY84	2,852	Panama/Honduras
	FY85	2,900	Panama/Honduras
	FY86	2,895	Panama/Honduras
ARNG	FY83	731	Panama/Honduras
	FY84	1,450	Panama/Honduras
	FY85	16,481	Panama/Honduras
	FY86	8,398	Panama/Honduras
USAR	FY83	*	Panama
	FY84	*	Panama/Honduras/Ecuador
	FY85	*	Panama/Houduras/Ecuador Grenada/Columbia
	FY86	5,500	Panama

*Data not available

The Reserve components' deployments to Central America have primarily been in support of JCS, SOUTHCOM, or Service exercises. Training has included: road construction and repair; medical and civil engineering; airlift support; jungle medicine and survival training; and construction, particularly in the Panama Canal area.

There is not a centrally managed system to compile medical and humanitarian assistance supplied to Central America, nor does the data in existence always differentiate between the Active and Reserve components. Assistance is normally rendered on a case-by-case basis in conjunction with scheduled training activities. For example, in 1985 MAC airlifted 450,000 pounds of humanitarian support cargo to Central America in response

to Space A requests. The Naval Reserve documented: treatment of 4,140 medical patients, 864 dental patients, and 7,500 prescriptions filled in FY-84; distribution of HANDCLASP materials, treatment of 775 patients, and construction and repair of playgrounds and schools in FY-85; and various construction projects in FY-86. The Army National Guard and Army Reserve also rendered medical and humanitarian assistance in conjunction with training exercises. For example, in FY-85, the Army Reserve provided disaster relief in Columbia and rehabilitation development in Grenada, and an Illinois Army National Guard medical clearing platoon treated civilian personnel near Salinas Air Base, Ecuador, in conjunction with mission training.

RECRUITMENT AND RETENTION

QUESTION. General Burdick, please describe the Warrant Officer Training System (WOTS) and its effect on the number of Warrant Officers. Does the program create a shortage of Warrant Officers, and if so is this a problem?

ANSWER. The Warrant Officer Training System (WOTS) provides a total training system for Warrant Officers throughout an entire career. It is designed to provide technical and tactical certification at the entry level, advanced training at the senior level and, if applicable, specialized training at the master level. The overall effect of WOTS establishes a professional development system in the Warrant Officer arena that enhances the training and utilization of the Warrant Officer in the Army National Guard. The entry level training causes the most concern for the Army National Guard. Premature termination of the direct appointment method of Warrant Officer accessions (1 October 1985) has created a shortage of Warrant Officers especially in the technical service (non-aviator) arena. To be appointed a Warrant Officer, a selected individual must complete a six week Warrant Officer Entry course (WOEC) or the RC version which consists of 129 hours of correspondence courses followed by a 15 day resident phase. After completion of WOEC, a technical certification course must be completed. The technical certification course varies from five weeks to thirty-nine weeks in duration depending of the specific Military Occupational Specialty (MOS). After this training is completed, then a soldier can be appointed a Warrant Officer. Herein lies the problem. For the traditional Guardsperson, this much time in the course of a year impacts adversely on their civilian career. This training is required and valid but the direct appointment process was stopped before the Reserve Component (RC) versions of these courses were developed. To date, only three proponent schools have RC technical certification courses developed. This accounts for 17 of 70 plus course utilized by the ARNG. TRADOC has a target date of 1 October 1988 for these courses to be developed and operational. Until then, and possibly beyond, the ARNG will have only Active Component versions of technical certification courses with which to train our Warrant Officers. As of 11 May 1987, Warrant Officer authorized strength was 10,147. Warrant Officer assigned strength was 9,456.

RECRUITMENT AND RETENTION

Question. Secretary Shaw, last year the Congress appropriated money for the Individual Ready Reserve Mobilization test. What conclusions can you draw from the test so far? Will the test be expanded in 1988? How much does calling up the IRR for one day annually cost?

Answer. About 15 percent of the Army IRR and 10 percent of the Marine Corps IRR were screened in the first two quarters of FY 1987. The Navy and the Air Force completed limited procedural tests during that timeframe, but are beginning full-scale IRR screening in the third quarter of the FY. For this reason, it would be premature to draw conclusions before the Services have completed screening for the FY, and we have had an opportunity to analyze the detailed results. However, we can make some observations.

We anticipate that about 55 to 60 percent of the more than 300,000 IRR members that the Services planned to screen in FY 1987 will actually report. This percentage should increase each year as the program becomes institutionalized and the Services undertake aggressive follow-up action.

Although the Services have consistently acknowledged that addresses are lacking for 5 to 10 percent of their respective IRR members, initial screening results indicate these percentages may be understated. The IRR is a very transient population.

Database record updates are averaging better than one per member screened. Many of these are address updates, which ensure that the maximum number of IRR members can be contacted immediately in a national emergency. Overall, our accountability and knowledge of the IRR is increasing dramatically.

Further, the involuntary recall of the IRR will significantly enhance the services' ability to identify assets, by skill. In this regard, limited testing is being conducted to help determine military skill proficiency and decay rates.

The Army notes that more is being learned about the availability and quality of the IRR. Of the 51,220 IRR soldiers screened as of 11 May 1987, about 78 percent met the height/weight screening table standards. About 74 percent have current physical exams and about 98 percent appear to be physically qualified for mobilization.

Finally, recruiting has been enchanced as a result of annual screening. The Army reports that over 2700 IRR soldiers have volunteered for duty with reserve component units or the active component.

The program will be expanded in FY 1988 with approximately 350,000 IRR members projected for screening. Additionally, a higher participation is anticipated.

Below are current cost estimates for FY 1988 and FY 1989. Preliminary cost data for FY 1987 indicates these estimates may be high.

Funds Required for IRR Screening
($ in millions)

	FY 1988	FY 1989
Army	$30.8	$33.4
Navy	$14.1	$16.2
Marine Corps	$ 3.1	$ 4.0
Air Force	$ 7.1	$ 7.5
Total	$55.1	$61.1

RECRUITMENT AND RETENTION

Question. In the statement which you submitted, you point out that approximately one-half of all non-prior service enlistees complete less than three years of the standard six year enlistment contract. Considering the substantial recruiting and training costs invested in each enlistee this high attrition rate seems disturbing. What is being done to address this problem?

Answer. We know that turnover in the Selected Reserve, since 1982 has averaged more than 25 percent each year, occurring mostly among members in grades E-1 through E-5 who had less than three years of service. Our force growth, when combined with high attrition, has caused a profound impact on recruiting during the past five years.

The nature of the volunteer environment precludes stringent disciplinary actions to compel continued affiliation and participation. During the draft years, non-participating reservists could be, and were, involuntarily, placed on active duty for up to two years. Current service policies allow non-participants to transfer to the IRR in lieu of calling them to active duty or administering punitive actions.

Attrition statistics and retention measures must be tied together to shape the strategies to improve the recruiting and retention environment. A broad spectrum of incentives and programs, such as those listed below, have allowed significant increases in Guard and Reserve strengths to be met with quality men and women.

Selected Reserve
Initiatives and Programs
(1981-1986)

- Expanded full-time recruiters by 30 percent
- Increased advertising by 80 percent
- Increased enlistment, affiliation, and reenlistment bonuses by 125 percent
- Provided educational loan repayment for critically-skilled enlisted members and officers with special medical skills
- Supported "New GI Bill" which provides educational benefits up to $140/month for undergraduate studies
- Provided educational assistance to officers in critical medical training programs of approximately $640/month
- Strengthened laws to protect rights of reservists from discrimination in hiring
- Improved health care benefits for reservists who are disabled while in training
- Expanded Employer Support Programs to all states and territories with a volunteer force of over 3,000

- o Initiated and conducted a major survey of reserve members and spouses to identify policy issues that can anhance recruiting, retention, and unit stability

Despite heavy unprogrammed losses, the reserve components have met total Selected Reserve end-strength objectives for the past six years, through outstanding leadership and efficient use of recruiting and retention resources. The continued availability of these targeted resources as well as the strengthening of leadership must be ensured.

FULL-TIME SUPPORT FOR GUARD AND RESERVE

Question. The Guard and Reserve have four different types of full-time personnel -- active duty personnel, active guard and reserve personnel, military/civilian technicians and civil servants. Could you explain to the Subcommittee why there are four different types of full-time personnel and the comparative benefits and drawbacks of each type. What are the comparative costs of the different types of full-time personnel.

Answer. The four types of Guard and Reserve full-time personnel came into being at different times and under different statutory authorities. Not all Reserve components utilize all four categories of full-time support. For example, the Naval Reserve and Marine Corps Reserve do not utilize military technicians. Active Component: Under the total force policy active duty personnel play a key role in managing and administering the reserve components. Active component personnel are also required by law at reserve component headquarters and to supervise reserve training. They serve at all levels of the reserve structure and are considered essential to insure the appropriate interface between active and reserve forces. Civilians: Military Department civilians are similarly assigned at all reserve component levels. They serve principally in administrative support positions and provide stability and continuity since they are not subject to the frequent rotations experienced by active component members. Civilians also provide continuity when military reservists deploy or are mobilized. Military Technicians: Military technicians have a long history with the reserve components, particularly the National Guard, and can trace their lineage to cavalry caretakers first authorized at the turn of the century. Military technicians are both military members and civilian employees of their reserve component and provide support in administrative, logistical and operational activities. House Report 95-451 on the DoD Appropriation for Fiscal Year 1978 recommended that the technician program be phased out. Specific reasons cited for this recommendation were direct salary and retirement costs, morale problems, questionable technician mobilization potential, and technician unionization. After a test of reserve component ability to attract and hire personnel in an active duty status, the fourth category of full-time support, the Active Guard/Reserve (AGR) program was created at Congressional direction. AGR's: AGR's are virtually identical to the Navy's TAR's who predate AGR's by some 25 years. AGR's perform functions similar to military technicians but serve in an active or full time National Guard duty status. A 1985 General Accounting Office review of the Army's full-time manning program compared technicians and AGR's and recommended AGR's as the resource of choice for full-time support in the Army Guard and Army Reserve since it offered an immediate solution to the technician deployability problem, and military pay and benefits would be a positive factor in recruiting and retaining qualified full-time personnel.

Costs: In terms of comparative costs AGR and active component member costs are virtually identical as are technician and civilian costs on a grade for grade basis. However, military technicians also receive reserve compensation in addition to civilian pay since they are required to be military members of the component by which employed. Active component and AGR personnel are now more costly than civilian employees of comparable grades due to recent larger military pay raises. Additional analysis on this very important issue is being performed by the 6th Quadrennial Review of Military Compensation and will be included in their report later this year.

Experience has shown that the flexibility provided by the availability of the various full-time resources has aided the reserve components in managing the increasingly complex reserve force structure. This is consistent with the active force use of various manpower resources such as active military, Department civilians, host nation civilians, and contractors to achieve readiness goals. Reserve component plans call for a future full-time support mix consistent with today's mix.

Full-Time Support for Guard and Reserve

QUESTION. General Ward, the Marines do not have military/civilian technicians while both the Army Reserve and the Army National Guard do. What are the differences in structure and operations that make them necessary in the Army components but not in the Marine component?

ANSWER. The USMC provides reserve forces support in a different manner from the US Army. USMC emphasis is on Active Component staffing. Organizational structure places these active component personnel outside supported units in an advisory capacity (within the USMC ground forces).

Within the Marine Full-Time Support force, there are roughly four Active Component Marines for every AGR (1478 AGR to 5180 AC). There is no equivalent to the military technician. The Marine Corps believes that utilization of Active Marines is essential to provide the Reserve with current doctrine, organizational concepts, and to ensure that Reserve units are trained and administered to Active Component standards. They also believe that this cross-fertilization is essential to familiarize the Active force with the capabilities and limitations of the Reserve Component.

The small AGR force is predominately enlisted (243 officers, 1235 enlisted). Due to limited requirements, the USMC is able to obtain sufficient volunteers for an AGR tour without developing a separate career management structure and most AGR serve only a single tour of three years with an Inspector/Instructor (I&I) Detachment in their local community. (Since I&I personnel are not assigned to the units they support, there is no equivalent of Army FTS staffing guides; personnel are documented on TDA and overall requirements are determined through the POM process).

It would be fair to characterize the Marine structure as similar to where the Army was 15 years ago. At that time, the

Army had dedicated AC advisors, similar to the Marine I&I Detachment, and few "statutory tour" USAR/ARNG personnel on active duty served more than a single three year tour. Since that time, however, the Army has adopted the Readiness Group concept to more effectively focus our AC advisory effort and developed the AGR concept to provide the full time unit personnel in the numbers and quality required to support the increased mobilization requirements of the total force. Moreover, the entire environment of the Army has been restructured to break down the isolation of the Reserve Components and ensure mutual understanding, not just by a few individual soldiers, but throughout the Army as a whole.

FULL-TIME SUPPORT FOR GUARD AND RESERVE

QUESTION. General Burdick, the Marines do not have military/civilian technicians while both the Army Reserve and the Army National Guard do. What are the differences in structure and operations that make them necessary in the Army components but not in the Marine component?

ANSWER. The Army National Guard can only answer the question of why it has technicians and that is best done from an historical perspective rather than an organizational one. Today's National Guard technician program is an outgrowth of a full-time support program that started over 70 years ago when the National Defense Act of 1916 first authorized Federal support to the state militia. Since that time, technicians (originally called caretakers and clerks) have provided full-time support in training, equipping and administering the National Guard within the states. Up until 1969, they were state employees funded by the Federal Government. In 1969, these state people were converted to Federal status under the National Guard Technicians Act (P.L. 90-486). The mission they do today is basically the same only expanded to cover increased missions and changes in technology. They continue to be employed within state boundaries in support of that state's Army and Air National Guard.

Question. Please describe the difference in full-time manning between the different Reserve and Guard components.

Answer. The following table shows the end fiscal year 1986 full-time manning, by component, for each of the categories of full-time support:

	ARNG	USAR	USNR	USMCR	ANG	USAFR
Active/Guard Reserve(AGR)	23,780	12,159	18,391	1,478	7,098	612
Military Techs	25,291	7,665	none	-0-	22,005	8,348
Active Comp	769	1,230	6,843	5,180	719	639
Civilians	2,476	5,507	3,102	252	2,496	4,825
Total	52,316	26,561	28,336	6,910	32,318	14,424
Sel Reserve	446,194	309,709	141,504	41,582	112,592	78,519
FTS % of Sel Res	11.7%	8.6%	20%	16.6%	28.7%	18.4%

QUESTION: General Salesses and Admiral Kempf, Full-Time Support increased dramatically since 1983, both in real terms and as a percentage of the Ready Reserve force. What are the reasons for this growth and will full-time manning, as a percentage of the Ready Reserve force, continue to grow?

ANSWER: The growth is required to keep pace with the expanding structure requirements, increased training tempo, expanding Individual Ready Reserve population, and to assure the Reserves are optimally managed at all levels. The active component already contributes over 5,000 personnel in support of the Reserves, but these resources are fixed. Full-Time Support personnel provide the Marine Corps the ability to expand administration and management of our Reserve component. The current ratio of Full-Time Support to Selected Reserve is 1:25; the ratio is expected to decrease to 1:22 in 1988, then 1:20 in 1989. As the reserve structure expands, there will be a need to increase the number of full-time manning through 1989; the ratio is now expected to remain constant at the 1989 levels.

QUESTION: Admiral Kempf, full-time support has increased dramatically since 1983, both in real terms and as a percentage of the ready reserve force. What are the reasons for this growth, and will full-time manning, as a percentage of the ready reserve force, continue to grow?

ANSWER: This growth is a result of three major factors:

First, much of this growth is not true growth, but a conversion of manpower assets from USN to Naval Reserve. As the TAR program has expanded into new ratings, many of the billets previously filled by USN personnel were converted to TAR. An additional part of this "growth" includes approximately 900 Naval Reserve Recruiters which until FY 1986, were included in the Regular Navy manpower account.

Secondly, much of this growth is the result of the increased Naval Reserve missions and the rapid increase in the number of Naval Reserve ships and squadrons and associated intermediate maintenance activities. For example, the majority of the requested increase for 1988 is in direct support of five additional NRF frigates, five additional Craft of Opportunity Program (COOP) units, three additional Mobile Inshore Undersea Warfare (MIUW) units, additional Reserve Air Squadron support and introduction of the first Mine Countermeasures (MCM) ship into the Naval Reserve.

Thirdly, the rapid growth of the Naval Reserve requires additional full-time support. Our drill pay strength has increased from 92,490 in 1983 to 129,965 planned for 1988.

I expect our program will only require a modest increase in full-time manning for the foreseeable future. This planned growth is absolutely essential to keep pace with the growth of Naval Reserve missions and hardware units.

QUESTION: Admiral Kempf, why is the Navy Reserve's full-time support so much higher as a percentage of the total Navy Reserve force than the other Guard and Reserve components?

ANSWER: Although our full-time support percentage appears to be high, we are not the highest in percentage of full-time manning. We do not employ military technicians as do most Guard and Reserve components. Our full-time support level results from the make-up of the Naval Reserve. A large percentage of our units are hardware oriented, operational units. These units require a relatively high number of full-time support personnel to operate when Selected Reservists are not embarked. These units operate with a fraction of the full-time manning required by active force counterpart units.

QUESTION. Please describe what types of units in the Army Reserve have a requirement for full-time manning (e.g., infantry vs aviation) and type of full-time manning (civilian technicians vs AGRs).

ANSWER: Reserve component units with early deployment dates, Rapid Deployment Force (RDF) missions, and those that roundout Active Component units receive priority for Full-Time Manning (FTM) support so that they can achieve the increased readiness levels required to meet critical mobilization and deployment criteria. Reserve Component units with highly technical, sophisticated equipment such as Military Intelligence, Aviation, Signal, Air Defense Artillery and selected maintenance units, place the highest relative percentage demands on FTM resources so that they can meet operations, training, maintenance, and safety requirements.

The restrictive language in PL 98-212 prohibits effective management of the FTM workforce. Most units have both AGR and civilian technicians assigned whose duties often overlap. Ideally, the Army would like to realign the FTM force so that AGR soldiers would perform operations and training support roles in deployable units and Army Reserve Technicians would perform base operations support functions.

QUESTION. Please describe what types of units in the Army Guard have a requirement for full-time manning (e.g., infantry vs aviation) and type of full-time manning (civilian technicians vs AGRs).

ANSWER. All mobilization deployable organizations (combat, combat support, and combat service support) require AGR full-time support. Staffing guides and manning criteria have been established for each type of unit/organization which prescribe the grade, military speciality and number of AGR soldiers for the unit/organization. It is our desire that mobilization, deployable organizations be manned with AGR soldiers and administrative and support activities be primarily manned with technicians.

QUESTION. Please describe what types of units in the Navy Reserve have a requirement for full-time manning (e.g., infantry vs aviation) and type of full-time manning (civilian technicians vs AGRs).

ANSWER: The Naval Reserve uses a combination of active component personnel and career Reservists on full-time active duty (our Training and Administration of the Reserve-TAR-program) to meet the full-time military manning requirements of the Naval

Reserve. The highest proportion of full-time manning, compared to Selected Reserve manning, is required for Naval Reserve ships and squadrons and their associated support units. This is a national outgrowth of the requirement to ensure that these elements of the Navy's force level are as operationally ready as counterpart units of the active force. Such complex weapons systems can not be kept in the required readiness status without a significant number of full-time military personnel. The blend of active component and TAR personnel in specific units is the result of several factors including availability of specific skills in each community and the Navy's commitment to blend active and Reserve component personnel to enhance interoperability through cross-pollination.

Although many Naval Reserve units are manned solely with Selected Reservists, a blend of full-time active duty personnel from both components is also needed in our support base, at Naval Reserve headquarters and at local and fleet training sites. This balance is relatively rich with TARs since the training and administration of Selected Reservists requires personnel with experience and understanding of Reserve unique regulations and situations.

QUESTION. Please describe what types of units in the Marine Corps Reserve have a requirement for full-time manning (e.g., infantry vs aviation) and type of full-time manning (civilian technicians vs AGRs).

ANSWER: The staffing of approved Full-Time Support billets parallels the policy of manpower staffing by active component support which is 100% staffing of identified requirements. Full-Time Support manning is necessary to supplement the active component contribution of over 5,000 personnel. Full-Time Support personnel are required in the 4th Marine Division units to include the Division Headquarters, Infantry Regimental Headquarters, Battalion Headquarters/Companies, Artillery Regimental Headquarters, Battalion Headquarters/Batteries, Tank Battalion Headquarters/Companies, Amphibious Assault Vehicle Battalions/Companies and Combat Engineer Battalion Headquarters/Companies. Full-Time Support personnel are also required in the 4th Force Service Support Group in the Group Headquarters, Supply Battalion, Maintenance Battalion, Motor Transport Battalion, Communications Battalion, and Engineer Support Battalion. The 4th Marine Aircraft Wing requirement of 70% full-time manning is accomplished by using active component personnel and Full-Time Support personnel. The type units include the fixed-wing groups and squadrons, helicopter groups and squadrons, the air control group and squadrons, and wing support group and squadrons. Additional Full-Time Support personnel will be required to support the standup of two Light Armored Vehicle Companies, four Tow Platoons, a Target Acquisition Battery, an AH-IJ Helicopter Squadron, and a Light Anti-Air Defense Battalion. Personnel are required for the Aerial Refueler Squadron, filling out Medical/Dental units, and the continued fill of billets in the Adversary Aircraft Squadron.

As provided under Title 10, U.S.C., support personnel are also required to administer, train, and provide improved reporting information regarding the Reserve establishment. The Marine Corps does not have civilian technicians; accordingly, our requirements are for FTS/AGRs.

Full-Time Support for the Air Guard

QUESTION. Please describe what types of units in the Air Guard have a requirement for full-time manning (e.g., infantry vs aviation) and type of full-time manning (civilian technicians vs AGRs).

GENERAL CONAWAY: The ANG has 91 flying units and 244 mission support units to include, communications, civil engineering, weather, aerial port, reconnaissance technicial, bands, state headquarters, training sites, etc. All of these units except the bands have at least one full time position authorized. The majority of all ANG full time requirements can be filled by either military technician or AGR personnel. The FY88 program supports a mixed force of about 76% technicians and 24% AGR.

Full-Time Support for the Air Force Reserve

QUESTION. Please describe what types of units in the Air Force Reserve have a requirement for full-time manning (e.g., infantry vs aviation) and type of full-time manning (civilian technicians vs AGRs).

General Scheer: All USAFR units (i.e., flying and non flying) require full-time manning. The USAFR utilizes two categories of full-time manning at its units: Air Reserve Technicians (ARTs) and Title 5 civilians. The ART serves in a dual status. As a federal civil service employee, the ART serves as a full-time manager, administrator, and trainer of Reservists in peacetime and, when mobilized, will become the command/control element as well as the nucleus of the unit. The Title 5 civilian provides full-time support to the Reserve unit but is not a mobilization resource. Title 5 civilians are generally adminstrative and Base Operating Support (BOS) in nature. The ART to Title 5 civilian mix varies between USAFR host and tenant locations based on the amount of BOS provided.

MOS Positions -- Army Reserve

QUESTION. Provide a list of MOS positions for all requested AGRs.

MG WARD. While all USAR AGR requested growth is based on documented, valid requirements, requested AGR growth in any given fiscal year is based on the Army's present management assessment of full-time support priorities in future years. In FY87 there is a requirement for over 24,000 USAR AGR authorizations but only 12,407 positions have been authorized. If the entire 1,843 USAR AGR growth request for FY88 were authorized today, AGR positions in the following Military Occupational Specialties (MOS) would be authorized:

	JOB SERIES	CAREER MANAGEMENT FIELD
OFFICER	15A,B,T	Aviation
	35D,G	Tactical/Signal Intelligence
	42A	Adjutant General
	92B	Supply and Material Management
WARRANT OFFICER	151A	Aviation Maintenance
	152,153,155	Pilot
	285	Electronic Warfare Equipment
	286	Chemical Equipment
	421	Armament
	621	Engineer Equipment
	630	Auto Maintenance
	761	Unit Supply
	762	Support Supply
	962	Imagery
	964	Order of Battle
	971	Counter Intelligence
	982	Traffic Analysis
	983	Emanation Analyst
	988	Voice Intercept
ENLISTED	11B	Infantry
	12C	Combat Engineering
	31C,V,Z,26Q,72E	Communications - Electronics Operations
	32Z	Communications - Electronics Maintenance
	33P	Electronic Warfare/Intercept Subsystems Repair
	34C	DAS3 Computer Repair
	35K,P	Aviation Maintenance
	52C,D	Mechanical Maintenance
	54C,E,Z	Chemical
	55B	Ammunition
	63B,Z	Vehicle Maintenance
	66N,T,V,Y,67G,N,T,V,U,Z	Aircraft Maintenance
	68B,D,F,G,J,K,M	
	71C,D,L,75B,C,Z,73C,Z	Administration/Personnel/Finance
	76C,P,V,W,Y,Z	Supply
	77F,W	Petroleum and Water
	81Q,82D	Topographic
	91B,C	Medical
	93P	Aviation Operation
	96B,D,R,97B	Military Intelligence
	98B,G,Z	Cryptologic Operations Electronic Warfare

If less than the full growth request is received or Army leadership priorities change to meet new contingencies, the above list could be significantly different by the time the Army begins to execute the FY88 budget.

MOS Positions—Army National Guard

QUESTION. (For the record), please provide a list of MOS positions for all requested AGRs.

ANSWER. The information requested is below:

1. FY 88 ARNG AGR RESOURCING BY MOS.
    a. Enlisted Personnel MOS.

Description	MOS	Number Required
Infantry	11B	3
Engineer	12B	5
Artillery	13B	52
ADA	16B	61
Signal	31V	9
Engineer	52B	5
Chemical	54E	22
Ammo	55R	9
Mech (OD)	63B	40
Trans	64C	3
Aviation	67N	128
Admin Pers	75B	435
Supply	76Y	301
Medical	91B	22
Intel	96B	31
	TOTAL	1126

b. Officer Personnel MOS.

DESCRIPTION	SSI	NUMBER REQUIRED
INFANTRY	11	2
ENGINEER	12	2
ARTILLERY	13	2
AVIATION	15	90
MIL INTEL	35	8
AG (PERSONNEL)	42	25
MEDICAL	60	6
ORDNANCE	91	3
QUARTERMASTER/ SUPPLY	92	15
	TOTAL	153

c. WARRANT OFFICER Personnel MOS.

DESCRIPTION	SSI	NUMBER REQUIRED
ADMIN/PERS	711A	25
LOGISTIC-SUPPLY	761A	25
	TOTAL	50

d. TOTALS (Enlisted, Officers and Warrant Officer)

ENLISTED	1126
OFFICER	153
WARRANT OFFICER	50
TOTAL	1,329

MOS Positions -- Navy Reserve

QUESTION: (For the Record), provide a list of MOS positions for all requested AGRs.

ANSWER: Our requested 1988 full-time support, Training and Administration of Reserve (TAR), growth consists of the following designator/ratings:

Officers (designators)

1107, Unrestricted line officer
1147, Special Operations officer
1307, Unrestricted Aviation line officer
1317, Pilot
1327, Naval Flight officer

1637, Special Duty (Intelligence) officer
1117, Surface Warfare officer
3107, Supply Corps officer
Enlisted (ratings)
QM, Quartermaster
OS, Operations Specialist
DP, Date Processing Technician
DK, Disbursing Clerk
SH, Ship's Serviceman
AG, Aerographer's Mate
BM, Boatswain's Mate
ET, Electronics Technician
RM, Radioman
YN, Yeoman
NC, Navy Counselor
SK, Storekeeper
MS, Mess Management Specialist
EN, Engineman
MR, Machinery Repairman
BT, Boiler Technician
EM, Electrician's Mate
IC, Interior Communications Electrician
HT, Hull Maintenance Technician
AD, Aviation Machinist's Mate
AT, Aviation Electronics Technician
AX, Aviation Antisubmarine Warfare Technician
AW, Aviation Antisubmarine Warfare Operator
AQ, Aviation Fire Control Technician
AC, Air Traffic Controller
AE, Aviation Electrician's Mate
AM, Aviation Structural Mechanic
AK, Aviation Storekeeper
AZ, Aviation Maintenance Administration
HM, Hospital Corpsman
AS, Aviation Support Equipment Technician

MOS POSITIONS — MARINE CORPS RESERVE

QUESTION: (For the Record), provide a list of MOS positions for all requested AGRs.

ANSWER: A breakdown of MOS positions for requested AGRs in FY88 and FY89 are as follows:

FY88 Positions

Reserve Judge Advocate
Facilities Officer
Travel Clerk
Diving NCO
Personnel Admin Chief
Manpower Analyst
Unit Diary Clerk
Personnel Clerk
Supply Admin Clerk
Engineer Equipment Chief

Retention/Career Planner SNCO
Communications Chief
Plans Officer
Training Operations Officer
Fiscal Chief
Supply Admin/Fiscal Chief
Infantry Weapons Repairman
Readiness Analyst
Admin Clerk
Admin Officer
Sassy Management Officer
Sassy Management Clerk
Communications NCO
RCCPDS Support Officer
RCCPDS Support Clerk

FY89 Positions

Prior Service Recruiters
Mobilization Plans Officer
Material Management NCO
Intelligence NCO
Motor Transport NCO
CSS Requirements Officer
Food Services NCO
PFR Clerk
Admin Clerk
Material Management NCO
Admin NCO
Manpower Officer
Personnel Admin Chief
Unit Diary Clerk
Info Systems Officer
Motor Transportation Officer
Personnel Clerk
Admin Clerk
ITT Officer/NCO
Intel Training NCO
Logistics Officer
Embark NCO
Personnel Clerk
NBC Defense Officer/NCO
Supply Warehouse Clerk
Recon Man
Staff CI Team
Procurement Officer
Disbursing Clerk
Admin Officer
Analyst Officer
Computer Analyst
NBC Officer
Systems NCO

MOS POSITIONS -- AIR NATIONAL GUARD

QUESTION: For the record, provide a list of AFSC positions for all requested AGRs.

GENERAL CONAWAY: The ANG has requested a growth of 275 AGR positions for FY88. This growth supports the following:

Force Structure Changes	+73
Electronics Security Squadron	+5
Professional Military Education Center	+31
Medical Readiness	+10
Combat Comm Equipment	+49
A-7 Maintenance & Munitions	+58
Contracting and Intelligence	+49

The ANG does not, with few exceptions, designate specific AFSC's for AGR fill only. Therefore, many career fields are involved. A sample listing follows:

Officer AFSC	Title
10XX	Pilot (Tanker)
11XX	Pilot (Fighter)
22XX	Navigator
40XX	Aircraft Maintenance & Munitions
49XX	Information Systems

Enlisted AFSC	Title
43XXX	Maintenance
20XXX	Intelligence
Special Identifier	Tech Training Instructors
90XXX	Medical
36XXX	Communications Systems
65XXX	Contracting

MOS POSITIONS -- AIR FORCE RESERVE

QUESTION: For the record, provide a list of MOS positions for all requested AGRs.

General Scheer: The Air Force Reserve does utilize Reservists serving four-year active duty military tours at Major Command, Air Staff, and OSD levels and as recruiters. In these capacities, they advise on Reserve matters, develop Reserve policy and handle headquarters administration. They do not participate in the day to day training of Reserve members and, therefore, are not considered "AGR" as commonly defined by other components. Following is a list of Air Force Specialty Codes (AFSCs) we currently use for statutory tour personnel:

QUANTITY	AFSC OFFICER	NAME
3	0002	General Officer
1	0026	Commander
11	0036	Operations
2	0046	Logistics
3	0056	Comptroller
20	0076	Planning & Programming

1	0216	International Politics Mil Affairs
17	0920	Recruiter
28	10XX-14XX	Pilots
17	15XX-17XX	Navigators
1	29XX	Program Management
6	40XX	Maintenance
2	49XX	Information Systems
3	55XX	Engineering
6	60XX	Transportation
1	64XX	Supply
4	66XX	Logistics Plans
4	67XX	Financial
2	70XX	Administration
39	73XX	Personnel
2	74XX	Manpower
2	75XX	Training
4	79XX	Public Affairs
5	80XX	Intelligence
1	81XX	Security Police
1	82XX	Strategic Investigations
1	88XX	Legal
3	89XX	Chaplain
6	90XX	Medical Admin
2	93XX	Physicians
2	97XX	Nurses
	ENLISTED	
1	113XX	Flight Engineer
2	206XX	Intelligence
1	241XX	Safety
1	271XX	Operations Systems
2	272XX	Command & Control
1	431XX	Aircraft Maintenance
1	432XX	Aircraft Maint Manager
1	472XX	Vehicle Maintenance
3	551XX	Construction Equipment
1	552XX	Structure Technician
1	553XX	Engineering Assistant
2	555XX	Production Control
1	571XX	Fire Protection
8	605XX	Air Transportation
1	622XX	Food Service
1	661XX	Logistics
2	672XX	Finance Manager
1	701XX	Chapel Manager
8	702XX	Administration
1	705XX	Legal Services
*80	732XX	Personnel
5	751XX	Training
1	791XX	Public Affairs
5	906XX	Medical Admin
1	907XX	Bioenvironmental Engineer
1	99107	Senior Enlisted Advisor
332	99500	Recruiters
4	99600	Student Training Advisor

*Includes 51 Base Individual Mobilization Augmentee Administrators (BIMAAs)

QUESTIONS SUBMITTED BY SENATOR BYRD

QUESTION. Since the end of the draft in the early 1970s, U.S. military manpower policy has been based on a large standing armed force augmented by "deployment-ready" Reserve forces and the National Guard. During the last decade, as active duty manpower levels have held steady or been reduced, DoD has placed an ever-increasing reliance upon reserve forces. In the event of large-scale hostilities, a well-trained and equipped Reserve and National Guard is a cornerstone of U.S. contingency planning. Nevertheless, there are reasons to believe that the "readiness" of the reserves is not equal to their anticipated responsibilities.

As Assistant Secretary of Defense for Reserve Affairs, James H. Webb expressed doubt that the reserves could fulfill their wartime missions, citing incomplete training, over-age officers, and "part-time" leadership as major shortcomings. What, in your view, can be done to address these criticisms in the near term?

ANSWER. The doubt that Mr. Webb expressed about incomplete training and over-age officers concerned the Army Reserve Components. Therefore, the answers address the Army:

Incomplete Training. Army trainers indicate that the Reserve component soldiers who report to them from initial training are every bit as good and complete in their training as active soldiers at that point in their military career. But a soldier who has become MOS (Military Occupational Specialty) qualified still requires individual task training by his unit, and needs additional seasoning. The challenge is to develop an MOS qualified soldier into a seasoned soldier, and to further refine purely military attributes that produce seasoned NCOs.

TRADOC (Training and Doctrine Command) has done a great deal of work in reconfiguring MOS course for Reserve component training, and in developing higher standards for both officers and NCOs.

In coordination with TRADOC, this office developed and accelerated MOS course reconfiguration which has been adopted by the Army, and an acceleration of the Regional Maintenance Training Site concept for refinement and sustainment of skills.

Over-age Officers. The Army has recently invoked stricter physical fitness standards, with a special emphasis on individuals over the age of 40.

Deputy Secretary of Defense Taft recently directed the Army to proceed full speed with the over-40 screening program. Funds have been made available for this screening. The screening will be accomplished through a coordination of in-house resources and civilian contracting.

Part-Time Leadership. Part-time leadership in the Guard and Reserve is a fact of life as our dedicated and outstanding Guardsmen and Reservists voluntarily give significant portions of their lives to leading our Reserve component units. In the last few years we have increased the strength and qualifications of our full-time support personnel to ensure mission training continuity and timely completion of administrative tasks, which enables our part-time leaders to concentrate more on the leadership aspects of wartime training. This partnership of drilling Guard and Reserve leaders with full-time support personnel is strong, effective, and working on a day-to-day basis to produce mission capable, task performing units.

Question. Under current policy, a substantial part of the equipment the Reserves and National Guard receive is "second hand" from the Active Services. Does this remain a cost effective approach? Are equipment failure rates and "down time" higher for the Reserves than the Active forces? Are maintenance and operation costs higher? Will the Reserves' use of older equipment hinder their operations with Active duty forces in the event of a conflict? As the manpower levels of the Reserves have risen, has there been a simultaneous increase in available equipment?

Answer. The use of second hand or older equipment is a fiscal fact of life for the Department of Defense regardless of where the equipment is located. It is neither fiscally possible nor desirable to have a completely modernized force, because a completely modernized force could become obsolete at the same time -- a less than desirable situation. Although perhaps not as capable as the latest state-of-the-art equipment, a once removed generation of equipment often represents a significant improvement over older replaced systems, and increases Total Force capability. Currently, a significant portion of the second hand or older equipment is located in the Reserve Components. Historical distribution patterns and deployment missions assigned to the Reserve Components have caused this condition which varies in degree by component. The Department's first to fight, first equipped policy for distribution of equipment is designed to consider scheduled deployment during wartime as the prime distribution factor rather than componency. This policy will, over time, ensure the proper distribution of equipment across Active and Reserve Component units and correct any inequities that may now exist.

Equipment failure rates also vary by component. Some of the reasons for higher failure rates for equipment in the Reserve Component are not attributable solely to the equipment's age, but also to differences in the Active and Reserve Component's methods of operation. As a general rule, as a specific piece of equipment becomes older failure rates may increase. Conversely, however, many initial operational shortfalls frequently found in newer systems have been resolved in the older, mature systems. Generally it is more difficult to obtain replacement parts for the older systems. However, the extensive experience, ingenuity and highly skilled maintenance technicians of Reserve units are often able to offset many of the handicaps posed by older weapons systems. As a result of these factors, differences in failure rates alone between the Active and Reserve Components may not be a valid indicator.

Operations and maintenance costs of the Reserve Components often vary from those of the Active Components for reasons related to the different operating tempos of the respective component. In general, similarly equipped Active and Reserve units operating at similar activity levels would experience comparable operating costs. The cost advantages of Reserve Component units over Active Component units results largely from their comparatively reduced operating tempo.

As previously noted, the existence of a mix of older and newer equipment in the Total Force is a fact-of-life with which the Department has always lived. Use of forces assigned "older" equipment often introduces additional considerations when they are employed with units equipped with more modern equipment. However, in most cases, concurrent use of older and newer equipment is possible, albeit sometimes with less than optimum capabilities. Most problem areas have been identified and necessary interim workarounds developed, and programs to alleviate the most critical ones are underway or planned.

While equipment levels have been rising in recent years, the pace has probably been somewhat slower than ability to meet manpower authorizations. However, the fact that the pace of process in providing manpower or equipment to the Reserves differs is not necessarily a cause for concern. A reasonable balance must be maintained, but the key factor, where equipment shortages exist across-the-board, is to ensure that each unit has the minimum equipment necessary to conduct training of assigned manpower. In many cases, a unit may not have its full wartime equipment complement but is still capable of keeping its personnel essentially fully trained on a reduced allotment or through the use of centralized, consolidated training facilities. Programs to ensure that units have the necessary equipment on which to train have been developed and equipment redistribution is being accomplished, where appropriate.

NATIONAL GUARD AND RESERVES

Question. An area of serious concern has been the number of medical personnel available to the reserves in the event of mobilization. What is the current situation with regard to combat medical personnel in the reserves today. What incentives could you suggest to remedy manpower deficiencies?

Answer. At this time, there are over 78,000 medical personnel in the Selected Reserve. Included in this number are more than 5,000 physicians, more than 9,000 nurses, and nearly 54,000 enlisted medical technician personnel, as shown below:

Selected Reserve
Medical Personnel Strengths*

Specialty	ARNG/USAR	USNR	ANG/USAFR	TOTAL
Physicians	3,045	972	1,236	5,253
Nurses	6,336	882	2,551	9,769
Other Professionals	7,098	1,175	1,299	9,572
Technicians	36,945	7,645	9,169	53,759
Totals	53,424	10,674	14,255	78,353

(*as of March 31, 1986)

Wartime Critical Medical Skill Shortages*

Skills	Shortages
Physicians	7,100
— General Surgeons	1,920
— Anesthesiologists	1,315
— Orthopedic Surgeons	2,030
— Other	1,835
Nurses	31,000
— OR Nurses	2,200
— Nurse Anesthetists	1,715
— Other	27,085
Enlisted	73,000

*(Shortages in current assets from active, reserve and retiree populations, using Service mobilization yields against full mobilization requirements at peak demand after M-Day)

A wide range of personnel initiatives are under consideration by the Department of Defense to further improve the staffing levels for the wartime medical specialties in the Selected Reserve. In January of this year, the Department submitted two reports to the Congress which specifically addressed initiatives needed to solve the physician-nurse shortfall problem in the reserve components. They are:

1. Permission for a range of stipend receipt payback options in the Selected Reserve and IRR. To attract the additional health care professionals required, the Department is considering a concept that will provide financial assistance for physicians and nurses while training in critical specialties, to include medical-surgical nurses, with an option for service in the Individual Ready Reserve (IRR) as well as the Selected Reserve as payback for the obligation incurred. The Department has tentatively concluded that reserve recruiting incentives with more flexible service payback provisions may provide the enhanced inducements necessary to attract health professionals in the numbers and specialties needed to resolve the remaining wartime shortfalls. Resource requirements for this initiative have been included in the Department's Legislative Contingency Package for FY 1988 ($19.6 million) and for FY 1989 ($21.4 million).

2. Permission for graduates of the Armed Forces Health Professions Scholarship Program to fulfill their military service obligation in the Selected Reserve. At the present time, the service obligation incurred in exchange for financial assistance under the Armed Forces Health Professions Scholarship Program (AFHPSP) must be served in an active duty status, even in cases where all the active force authorizations have been met in the particular specialty that is held by the scholarship participant. The concept would give authority to the Secretary of Defense to permit a physician completing the scholarship program to satisfy the payback obligation in the Selected Reserve (with a minimum of three years for each year of assistance) if he or she would be better utilized in the reserve components than in the active force. Upon Congressional enactment, the Department will implement this initiative at no additional cost.

3. Expansion of the type of loans covered in the Loan Repayment Program. In a January 1987 report to the Congress, the Assistant Secretary of Defense for Health Affairs indicated that more effective use of the loan repayment program could be realized through a minor legislative modification. The existing legislation limits the repayment of loans to those made under Parts B and E of Title IV of the Higher Education Act and Part C of Title VII of the Public Health Service Act. However, the majority of student nurse loans are not made under these loan authorities. As a result, the size of the potential market population is restricted and the opportunity to recruit is limited. Expansion of the loan repayment eligibility to encompass the loans made under Part B of Title VIII of the Public Health Service Act (codified in Title 42, United States Code, Assistance to Nursing Students) and several other types of student loans would materially increase the size of the potential recruiting pool. These other types of non-federal education loans which are commonly used by nurses, sometimes in combination, include: state guaranteed student loans, Supplemental Loans for Students (SLS), Perkins Loans, all university-processed student loans, and all other loans approved by the National Association of Student Financial Administrators. Upon approval by the Congress, the Department is prepared to execute this initiative within the existing budget.

4. Expansion of the list of critical skills in the Loan Repayment and Stipend Programs. The specific types of specialties for which these incentives are presently intended by the Congress are identified as general surgeons, orthopedic surgeons, anesthesiologists, nurse anesthetists and operating room nurses. The Department of Defense has a critical shortage of reserve medical-surgical nurses (approximately 27,000) and believes that this medical specialty should be also included in the loan repayment authority. The Public Law establishing these incentive programs authorizes the Secretary of Defense to determine the health professions that are critically needed and eligible to participate. The Department believes that this authority and the programs associated therewith can be made more effective in alleviating remaining shortages if the Secretary of Defense is permitted to make the determination of the critical wartime health care specialties as provided in the legislation, rather than continuing the strict specialty limitations presently imposed. This would allow the Department to use the programs more effectively to attract other types of critical health care professionals such as medical-surgical nurses as well as make it possible for the Department to redefine critical wartime specialties as warranted by changing needs. Upon approval by the Congress, the Department is prepared to execute this initiative within the existing budget.

5. Increasing the initial entry age and continued participation age requirements of reserve health care professionals. This initiative would increase the pool of eligible qualified professionals in the specialties needed to meet Selected Reserve mobilization medical manpower requirements. The Department is working with the Military Services to examine the benefits associated with standardizing the age for initial appointment to 48 years and the maximum age for reserve participation to age 67. There is no additional cost associated with this initiative. The Department will initiate appropriate legislation, as needed, pending the completion of the review by OSD.

6. A change to the Department of Defense Directive which would allow more flexible training for health professionals in the Selected Reserve. This change has been staffed with the Services and within the Department of Defense (DoD). We have consolidated those comments and have asked the General Counsel to review the legal aspects prior to implementation.

NATIONAL GUARD TRAINING IN CENTRAL AMERICA

QUESTION. For the last two years, the number of National Guard personnel training in Central America has increased significantly. Initially DoD characterized these training deployments as "temporary." Recently, however, press reports have indicated that permanent barracks and other facilities are now being constructed for U.S. personnel. Do you anticipate the rotation of National Guard units to Central America to go on indefinitely? Though each individual National Guard unit is deployed temporarily, are we not in effect establishing a permanent U.S. military presence in Central America through these on-going training assignments?

ANSWER. Actually, the number of National Guard personnel training in Central America has declined since FY 85 while overall reserve component participation in U.S. Southern Command exercises remained level. During this period the Army Reserve has increased its participation in these exercises. Because of the shift to Ecuador of a major National Guard road building exercise planned for Honduras, overall Reserve component exercise participation in the Central American region will also decline in FY 87. JCS exercise plans keep future reserve component participation in U.S. Southern Command exercises at its present level.

Training deployments of the Army National Guard and the Army Reserve to Central America are temporary in nature. Since they are mostly engineer units involved in road building exercises, their deployments are limited to the dry season which lasts about six months. JCS exercise plans do call for these exercises to continue indefinitely, but they do not establish a permanent presence because they are limited to six months every year. Continuance of these exercises is desirable since they offer engineer units an opportunity to conduct realistic mission-related training.

The facilities that Army National Guard and Army Reserve personnel occupy during Central American road building exercises can only be characterized as temporary. They live in tents with wood floors. The tents are redeployed upon conclusion of each exercise and those floors that are found to be reusable are kept for use in subsequent exercises. Unfortunately, the wooden floors deteriorate rather rapidly due to weather and the termites. Because of shifting and remote locations for road building exercises, permanent or semi-permanent facilities would be inappropriate.

QUESTIONS SUBMITTED BY SENATOR LEAHY

ARMORED PERSONNEL CARRIERS

Vermont's armored brigade is authorized 44 M113 APCs, but has only 30. This situation is not unique to Vermont. The Army National Guard and Reserve is short almost 3000 APCs and related armored fighting vehicles.

Yet, I understand that the Army plans to cease production of the M113 with the FY 88-89 budget.

I have several questions about this:

QUESTION. Where will this leave the National Guard and Reserves as far as APCs are concerned? How will this huge shortfall be closed and by when? What does the shortage of APCs say about Guard and Reserve readiness and capability to play its role in rapid reinforcement of the Active Army in combat?

ANSWER. Based on current requirements for the M113 Armored Personnel Carrier, the USAR has sufficient assets on hand to meet the readiness rating criteria for fiscal years 1987 and 1988. However, future unit activations and other uses for the M113 chassis (Improved TOW Vehicle), Fire Support Team Vehicle, Command Post Carrier, Cargo Carrier) make continued production of the M113 Family of Vehicles crucial to the USAR's ability to deploy in reinforcement of the Active Army.

QUESTION. What would be your position if Congress were to direct the continued production of M113s to fill Guard and Reserve requirements? What would be the appropriate rate of production for these purposes and what would the additional cost be?

ANSWER. The Army Reserve supports continued production of the M113 Family of Vehicles to meet minimum requirements of 52 ITVs and 4 APCs at a cost of $15,680,000.00 over the next two years.

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I have several questions about this:

QUESTION. Where will this leave the National Guard and Reserves as far as APCs are concerned? How will this huge shortfall be closed and by when? What does the shortage of APCs say about Guard and Reserve readiness and capability to play its role in rapid reinforcement of the Active Army in combat?

ANSWER. Although the Army isn't buying the M113 in FY88 or FY89, the production of the M113 will not stop. Additional quantities are scheduled for procurement in future years. Considering both present and future requirements for the M113 Family of Vehicles, the ARNG will be pressed to maintain a deployable level of fill without additional deliveries. New production remains the only significant source for these assets to fill shortages in the Reserve Components in the current POM Cycle years. These shortages have a significant impact on the

ARNG's combat capability. Units with this limited level of fill are considered to have major deficiencies which limit the ability to accomplish the wartime missions.

QUESTION. What would be your position if Congress were to direct the continued production of M113s to fill Guard and Reserve requirements? What would be the appropriate rate of production for these purposes and what would the additional cost be?

ANSWER. The ARNG supports the continued production of the M113 APC and would desire a minimum of a C-2 level (80%) of fill in all ARNG units. This resourcing would require a minimum production of 315 vehicles per year over the next two years. The current unit cost for the vehicle is $280,000, requiring the expenditure of $88.2 million per year for two years.

TANK MODERNIZATION

Two years ago, I did an amendment to the Defense Authorization requiring a study of the Army's modernization plans for the Guard and Reserve tank units. I understand from that that the Army plans to make major upgrades to the M60A3s in the Guard and Reserve invertories. Eventuall, some units will be equipped with M-1s.

This is fine for those fortunate states with high priority armor units, but what about Vermont's armored brigade, which is still equipped with M48A3s? I am outraged that Vermonters will be asked to go up against Soviet T-72s in a major war still using Korean War vintage M48A3s.

QUESTION. What are your plans to modernize Vermont's armored brigade with at least the improved M60A3s? How much longer must our brigade be forced to train in antiquated Korean War tanks?

ANSWER. The 1-172 AR and 2-172 AR of the 50th AR Div located in Vermont are scheduled to receive M60A3 training during annual training in FY 89 (26 Aug - 23 Sep 89) at Camp Shelby, MS. Their full complement of M60A3 tanks will begin delivery and deprocessing during Nov 89 and will be completed by Feb 90.

QUESTION. With plans to close the M-1 production line in FY91 after Active Army requirements are met, how will the Army modernize Guard and Reserve armor so that it can meet readiness and combat sustainability requirements?

ANSWER. The ARNG began modernization of its tank fleet with the M60A3 in 1981. By the end of 1990 the ARNG will be fully equipped with the M60A3 in non-roundout units and M1 Abrams in roundout units. There is currently no approved program to continue this modernization process past the M60A3 to the Abrams family of M1 or M1A1s unless Abrams production is extended.

QUESTION. What would be your position if Congress were to direct that M-1 remain in production after FY91 at a reduced rate until Guard and Reserve armor shortfalls and modernization requirements were met? How long would the M-1 have to remain in production to meet those requirements, what would the optimal production rate be, and what would the cost be?

ANSWER. The National Guard would fully support a directive that Abrams tanks remain in production. The optimal production rate is 840 per year, the minimum production rate is 600 per year. If a production rate of 600 per year were maintained through 1996 several objectives would be accomplished: (1)continued modernization of the ARNG to meet the threat of the 90s; (2)enhance interoperability of the ARNG with AC units, (3)simultaneously, for the same cost, fill AC M1A1 requirements thus displacing M1s into the ARNG. The current cost is approximately 2.5 M each not considering efficiency of scale and multi-year contract advantages.

QUESTION. With plans to close the M-1 production line in FY91 after Active Army requirements are met, how will the Army modernize Guard and Reserve Armor so that it can meet readiness and combat sustainability requirements?

ANSWER. By FY88, the Army Reserve tank fleet is projected to consist of 209 M60A3 tanks to satisfy a total requirement for 209 combat tanks of all types. This differs from the FY88 National Guard and Reserve Equipment Report because of force structure changes which reduced the requirements for M60 series tanks. There are no current plans to distribute M-1 tanks to USAR units.

ARMY OFFICER LEVEL CUTBACKS - RESERVES

QUESTION. Last year, Congress directed a reduction in the Active Duty Commissioned officer strength. There is concern that the Army may opt to take a disproportionate share of its officer level cutbacks out of Army National Guard and Reserve officer components.

I wrote recently to Secretary Marsh expressing concern at such a step and seeking assurances that the Guard and Reserve officer levels would not bear a disproportionate share of these cutbacks.

1. Are you aware of Army Plans to absorb congressionally-mandated reductions in the level of commissioned officers? Do you have any concerns that these plans may fall disproportionately heavily on the Guard and Reserves?

2. How will the Guard and Reserves absorb its share of the reductions in commissioned officer strengths?

ANSWER. I am aware of the Army's plans to absorb the directed reductions in the level of commissioned officers. These reductions apply only to the active Army and will not result in the reduction of the number of officers in the United States Army Reserve. However, the proposed reductions may adversely impact on the active Army's support provided both through the U.S. Army Readiness Groups and to full time active Army positions in Army Reserve units. None of the FY 1987 reductions are in either of these categories. The current priority list has reductions to full time support to the Reserve Components for consideration in FY 89 if cuts must be taken. I do not anticipate that any of the reductions under consideration will disproporptionately fall on active Army support provided to the Army Reserve.

ARMY OFFICER LEVEL CUTBACK -NATIONAL GUARD

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I wrote recently to Secretary Marsh expressing concern at such a step and seeking assurances that the Guard and Reserve officer level would not bear a disproportionate share of these cutbacks

QUESTION. Are you aware of Army plans to absorb congressionally-mandated reductions in the level of commissioned officers? Do you have any concerns that these plans may fall disproportionately heavily on the Guard and Reserves? How will the Guard and Reserves absorb its share of the reductions in commissioned officer strength?

ANSWER. I am aware of these plans. The Army plans to make the reductions in the Active Component and not in the Army National Guard. The Army leadership understands that, because of the reduction in the growth of our Active Guard/Reserve (AGR) program directed by Congress last year, it would be very hard for us to make any further reductions in full-time officers. However, reductions in Active Component officers may adversely impact on the support the Guard has been receiving. Army Readiness Groups, Army Advisors, and possibly Active Component Full-Time Manning positions in the Army National Guard will likely receive a proportional share of the reductions.

I believe that the Army National Guard has absorbed a separate officer strength reduction in the form of the Congressional limitation of AGR growth.

FUNDING FOR TRAINING - ARMY GUARD

QUESTION. Please describe funding levels for Guard training in this budget request. Are they adequate to meet Guard training needs? To meet your demonstrated training requirements, what level of funding should you receive in this budget request? Do you have any concern that DoD is cutting back on necessary training to protect other account, such as procurement or R & D?

ANSWER. There are two categories covering training in the Army Guard budget. The first is Unit and Individual Training i.e., 48 drills, 15 days Annual Training, and Initial Entry Training. The second is Other Training and Support. This category provides funding for Schools and Special Training. Severe cuts of $27 million in School Training and $32 million in Special Training in the FY 87 budget greatly hampered the Army Guard's ability to train personnel in their Military Occupational Specialties, conduct Mobilization Exercises, and perform overseas training. The School Training requirements for FY 88 have risen by 144.7 thousand workdays requiring a 7% increase in funding over appropriated FY 87 levels. The Special Training workday requirements have increased by 111.3 thousand requiring a 9% increase in funding.

The FY 88 funding appears to be adequate if there are no Congressional reductions. Based on historical data and additional missions placed on the Army National Guard, we feel that the Guard training must be funded at the level requested in the President's Budget.

The Department of Defense (DoD) has supported the training of the Reserve Components based on their ability to execute and the availability of personnel to meet training requirements. The only reduction in the Army National Guard training funds for National Guard Personnel, Army (NGPA) in FY 87 were those mandated by Congress. DOD did adjust the FY 88/89 budget request according to these mandates.

FUNDING FOR GUARD TRAINING - AIR GUARD

QUESTION: Please describe funding levels for Guard training in this budget request. Are they adequate to meet Guard training needs? To meet your demonstrated training requirements, what level of funding should you receive in this budget request? Do you have any concern that DoD is cutting back on necessary training to protect other accounts, such as procurement or R&D?

GENERAL CONAWAY: The programmed funding levels for Air National Guard training are adequate to meet our continued modernization to new aircraft and missions. Without full-level funding, the ANG will not be able to properly train to support the Total Force. The DoD budget properly balances the funding for training and other accounts to provide for a fully trained Air National Guard force.

ACTIVE GUARD AND RESERVE POSITIONS - ARMY

I understand there is a substantial shortfall nationwide in the so-called "Active Guard/Reserve" positions, those billets filled by fulltime uniformed Guard and Reserve personnel. This shortfall may be as high as 14,000. I do know Vermont alone is short nearly 225 AGR positions, with an adverse impact on training and readiness.

QUESTION. What are the Guard's plans for filling this AGR shortfall?

ANSWER. In the DOD budget preparations, the ARNG requested 3,147 AGR growth in FY 88, and 3,946 AGR growth in FY 89. In addition, the ARNG requested a growth of 500 technicians in FY 88 and again in FY 89. This overall growth would have enabled the ARNG to reach the Congressionally suggested level of 14 percent of ARNG end strength in full-time support. The difference between the budget request for AGR which was sent to Congress and what was presented to DOD would have gone to alleviate the shortfall. The growth, 1329 positions, contained in the President's budget is barely sufficient to support new unit mission, and equipment actions being given to ARNG.

QUESTION. What are the specific plans for Vermont?

ANSWER. The overall objective of the Army National Guard is to fill our AGR shortfalls to 100 percent of required positions. Resourcing for units is accomplished by first to "fight", first to be resourced. Units of Vermont National Guard are included in this resourcing plan. However, this can only be accomplished by continued Congressional suppport for AGR growth.

QUESTION. What is the impact on readiness and training of this AGR shortfall?

ANSWER. Lack of growth will negatively impact on the Army National Guard's ability of sustaining and improving its readiness posture. Full-time support provides manning for day-to-day continuity of operations to keep Guard units operating efficiently.

ACTIVE GUARD AND RESERVE POSITIONS - AIR FORCE

QUESTION: I understand there is a substantial shortfall nationwide in the so-called "Active Guard/Reserve" positions, those billets filled by full time uniformed Guard and Reserve personnel. This shortfall may be as high as 14,000. I do know Vermont alone is short nearly 225 AGR positions, with an adverse impact on training and readiness. What are the Guards plans for filling this AGR shortfall? What are the specific plans for Vermont? What is the impact on readiness and training of this AGR shortfall?

GENERAL CONAWAY: Only security and recruiting positions are designated as AGR only in Vermont. These positions are fully funded. However, the Vermont ANG as well as other ANG units can not fill all of their positions due to budget restricitions. Most of the other vacancies that exist throughout the ANG can be filled by either technician or AGR if resources were available.

NIGHT VISION EQUIPMENT - ARMY GUARD

The acute lack of modern night vision equipment in the Guard and Reserves is and has been for several years a special concern of mine. I discussed this issue with the Guard Bureau in 1985, but my concers remain unsatisfied.

In 1985, I was told only 25% of the Guard and Reserve needs for night vision devices had been met.

QUESTION. What is the situation today with respect to Guard and Reserve requirements for sights and night vision devices? What plans exist to meet the shortfalls? What, specifically, is the situation in the Vermont Guard units with respect to sights and night vision devices, and what plans exist to overcome current shortages?

ANSWER. The ARNG posture for night vision devices is generally quite inadequate. The percent of fill for the major night vision devices that are required in the ARNG ranges from 11% to 24%. The ARNG will receive 3,150 AN/PVS-5 night vision goggles and 1,825 AN/PVS-4 night vision sights from delivery of FY 84 separate appropriations funded equipment. The Vermont Guard has a shortage across the board in respect to sights and night vision devices. For night vision goggles, for example, Vermont currently has 36 on-hand against a requirement of 381. The ARNG will issue the night vision devices procured from separate appropriations in Department of the Army Master Priority List (DAMPL) sequence. Due to the shortages in high priority units, Vermont units will probably not be resourced from those quantities currently on order.

Night Vision Equipment - ARMY RESERVE

QUESTION. In 1985, I was told only 25% of the Guard and Reserve needs for night vision devices have been met. What is the situation today with respect to Guard and Reserve requirements for sights and night vision devices? What plans exist to meet the shortfalls?

ANSWER. Since 1985, the total number of night vision devices on hand in Army Reserve units has remained almost constant and substantial shortages are expected to continue beyond FY90. Approximately 3,000 AN/PVS-5, AN/PVS-4, AN/TVS-5, and AN/PVS-7 night vision goggles and sights are on order with procurement funds set aside by Congress for the Army Reserve. With stocks currently on hand, this would provide sufficient assets to meet only approximately 30% of projected FY88 USAR requirements for these devices; however, substantial shortages of night vision devices also exist in the active component. The cost of these devices, the magnitude of the requirement, the availability of resources, and pressing requirements for other critical items all dictate that other than high priority units will experience night vision shortages well into the next decade.

NIGHT VISION EQUIPMENT - AIR FORCE RESERVE

QUESTION: The acute lack of modern night vision equipment in the Guard and Reserves is and has been for several years a special concern of mine. I discussed this issue with the Guard Bureau in 1985, but my concerns remain unsatisfied. In 1985, I was told only 25% of the Guard and Reserve needs for night vision devices had been met. What is the situation today with respect to Guard and Reserve requirements for sights and night vision devices? What plans exist to meet the shortfalls? What, specifically, is the situation in the Vermont Guard units with respect to sights and night vision devices, and what plans exist to overcome current shortages?

General Scheer: All mobility and training requirements for night vision equipment in the Air Force Reserve which were otherwise unfunded are being procured using special equipment funds appropriated in FY 1985 and FY 1986. Deliveries of this equipment are expected to begin in November 1988 and should be complete by April 1989.

NIGHT VISION EQUIPMENT - AIR GUARD

QUESTION: The acute lack of modern night vision equipment in the Guard and Reserves is and has been for several years a special concern of mine. I discussed this issue with the Guard Bureau in 1985, but my concerns remain unsatisfied. In 1985, I was told only 25% of the Guard and Reserve needs for night vision devices had been met. What is the situation today with respect to Guard and Reserve requirements for sights and night vision devices? What plans exist to meet the shortfalls? What, specifically, is the situation in the Vermont Guard units with respect to sights and night vision devices, and what plans exist to overcome current shortages?

GENERAL CONAWAY: The Air National Guard is currently conducting a study with the Air Force to determine any Night Vision Device needs, but none have been determined other than for the 80 A-7 Low Altitude Night Attack (LANA) aircraft. Moreover, night vision device requirements are not being considered for F-16 Air Defense Aircraft.

QUESTIONS SUBMITTED BY SENATOR KASTEN

NATIONAL GUARD FACILITIES

QUESTION. General Temple, it is my understanding that the National Guard Bureau is in the process of consolidating it's headquarters facilities at Arlington Hall. What is the status of this effort?

ANSWER. The Army National Guard submitted in the Fiscal Year 1988 President's Budget in accordance with Senate Armed Services Committee language in Report 99-331, National Defense Authorization Act for Fiscal Year 1987, included a $28 million project for construction of an Army National Guard Center at Arlington Hall Station, Virginia. Also, in accordance with the Senate's directive, planning and design was initiated in Fiscal Year 1987. This project will provide facilities for the consolidation of activities located in seven locations, six in the National Capitol Region and one at Edgewood, Maryland. With the completion of the project the consolidation should be completed in 1991 or 1992. Currently, the Aspin Ammendment to the House Armed Services Committee mark of the 1988 Authorization Bill deletes funding for this project. Without funding and authorization, the building cannot be built.

QUESTIONS SUBMITTED BY SENATOR D'AMATO

CONVERSION OF EC-130Q TACAMO TO KC-130T

QUESTION: Have request for proposals (RFP) on this conversion been issued? How much will the RFP exercise cost and from where will the money come?

ANSWER: The Naval Air Systems Command issued a RFP on conversion of EC-130Q TACAMO to KC-130T (equivalent) aircraft on 28 February 1987.

The estimated cost for the RFP exercise is $.5M. Funding will come from the FY 1987 National Guard and Reserve Equipment Appropriation.

QUESTION: How much money do you expect to save by the conversion from EC-130Q TACAMO aircraft to KC-130Ts? What do you plan to do with the savings?

ANSWER: The estimated cost for conversion of 14 EC-130Q to KC-130T equivalent aircraft is $130.0M, which relates to a savings of $100.0M over new aircraft.

Even though a cost savings would be realized, all monies provided for tanker aircraft would be absorbed in any conversion of EC-130Q's and required support equipment.

QUESTION: How will this competition delay the stationing of 12 KC-130T aircraft at Stewart airfield?

ANSWER: It is premature to say whether or not this competition will delay the stationing of 12 KC-130T aircraft at Stewart Airfield. Early studies indicate conversion will accelerate availability of airframes over new purchases.

Question. You describe in your testimony the benefits of the Active Guard and Reserve (AGR) and the Civilian Technicians, for both of which you advocate force increases. Yet many Civilian Technicians strongly believe that the growth of the AGR program is at their expense. Of more concern, however, is that the AGR program is significantly more expensive than using Civilian Technicians. Civilian Technicians point out that AGRs earn approximately $8,000 to $10,000 more per year than Civilian Technicians, and AGRs neither have to pay into a retirement system nor pay for health benefits. Could you comment on these assertions? What does an AGR person do that a Civilian Technician cannot do?

Answer. The long range plans of the reserve components which utilize technician personnel in full-time support call for increases in both technician and AGR resources. The Army plan for full-time support aligns AGR's in deploying units and technicians in support and maintenance type activities. This plan is consistent with a recommendation made by the General Accounting Office, however, implementation will require removal of a Congressional prohibition on moving technician positions. General cost comparisons of the type cited are seldom accurate. AGR compensation is virtually identical to active component compensation. AGR resources are generally admittedly more costly than technicians, but an accurate cost comparison requires a grade by grade analysis with specific functions and authorizations identified. An in depth cost analysis is being performed by the 6th Quadrennial Review of Military Compensation. Conclusions will be included in their report later this year. The types of duties performed by technicians and AGR's varies by component, however, over the AGR program's existence certain conclusions have surfaced on the effective utilization and compatibility of AGR and technician resources. For example, the General Accounting Office in its 1985 review of the Army's full time manning program recommended against mixing both technicians and AGR'S in the same unit due to management problems and underlying friction between the two groups. The GAO report provided the basis for the Army's current full-time support plan referenced earlier. The Air Force Reserve does not utilize AGR's at the unit support level preferring to use technicians for this purpose. The Air National Guard has found that AGR's lend themselves particularly well to activities such as weapons system security and strategic alert operations. However, the ANG utilizes both technicians and AGR's in many other unit support activities.

Question. (Dennis Shaw) You mention in your statement the equipment shortfall problem and that the DoD's policy is that those units which are first to deploy and fight should be the first to be equipped. Are these units which are scheduled for early deployment fully equipped?

Answer. While the level of equipage for first to deploy units varies with the Reserve Component and within the Reserve Components by unit function, all components are striving to make the "first to fight, first equipped" policy a reality and to provide the maximum combat capability with the resources provided. At this time, problems in this area are probably most acute in the Army Reserve Components, particularly in the combat support and combat service support functions. The Army has recognized these problems and has earmarked substantial resources in the current defense program to alleviate equipment shortfalls. Further, internal equipment redistribution actions are underway to maximize Army Reserve Component equipment readiness. The Air Reserve Components' aircraft units are all scheduled for early deployment and, with two primary exceptions, are equipped to essentially the same level as their Active counterparts. One significant problem is related to F-15/F16 transfers where insufficient ground support equipment accompanies the aircraft when they are transferred from the Active forces. Two sets of ground support equipment (GSE) support 72 aircraft at one site in an Active wing. When these aircraft are transferred to the Air Reserve forces, and split into four units at various locations, insufficient GSE is available to support all four locations. Extensive workarounds are required to provide adequate support. An additional area of primary concern is the shortage of ECM pods in the Air Reserve Forces for tactical fighter aircraft. Lack of these pods has a significant adverse effect on the combat survivability. Naval Reserve units are integrated directly into the Active Navy operating plans. A prime example is the modernization program for the two carrier air wings which is carefully synchronized with the overall Active Navy carrier modernization program. The most notable Naval Reserve equipment shortages are in the Cargo Handling and Construction Battalions; however, the equipment to alleviate these deficiencies has been identified and is included in the Department's Five Year Defense Plan.

Readiness of New York Guard and Reserve Units

Question. How do the C-Ratings (Readiness Ratings) of New York state's Guard and Reserve units compare with those units from other states?

Answer. Based on the JCS Status of Resource and Training System (SORTS), formerly the Unit Status Report (USR), New York units, taken as an aggregate, are on a par with total Army reserve component units in terms of overall resource status.

Designated units of the reserve components report their resource levels (C-levels) through SORTS in four resource areas: personnel, equipment, equipment condition, and training. These overall resource levels of units are computed from the aggregate of the four resource areas. About 190 New York Army reserve component units currently report their status through SORTS.

SUBCOMMITTEE RECESS

Chairman STENNIS. All right, is there anything else to come before our group now, gentlemen?

Senator STEVENS. No, sir.

Chairman STENNIS. All right. Thank you again. This has been an outstanding hearing. Just keep on keeping on. Thank you all.

Mr. SHAW. Thank you.

Senator STEVENS. Thank you.

[Whereupon at 11:40 a.m., Tuesday, April 28, the subcommittee was recessed, to reconvene at the call of the Chair.]

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